

AD A130 647 WIND AND WAVE SUMMARIES FOR SELECTED US COAST GUARD
OPERATING AREAS(U) NATIONAL CLIMATIC DATA CENTER
ASHEVILLE NC D PASKAUSKY ET AL. APR 83 USCG-D-11-83

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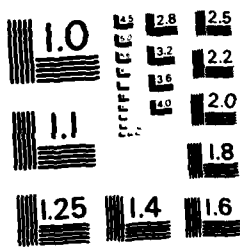
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REPORT NO. CG-D-11-83

APRIL 1983

WIND AND WAVE SUMMARIES FOR SELECTED U.S. COAST GUARD OPERATING AREAS

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UNITED STATES COAST GUARD
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This report was prepared to describe the wind and wave conditions that can be expected in U.S. Coast Guard geographical operating areas. The intent is to provide operational program managers a tool to use when considering the potential applications of conventional and advanced marine vehicles (AMVs) to Coast Guard missions. It is also intended to supplement research determining the feasibility of alternate energy sources that involve wind or waves. This work was performed by the National Climatic Data Center under the direction of the U.S. Coast Guard Research and Development Center for the Office of Research and Development.		

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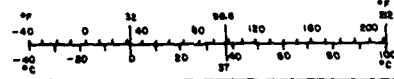
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
acres	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	metric tons	t
VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
km	kilometers	1.1	miles	mi
		0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10 000 m ²)	2.5	acres	acres
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	metric tons (1000 kg)	1.1	short tons	short tons
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m ³	cubic meters	36	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³
TEMPERATURE (exact)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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Figure 4. Gust factor graphs for selected NOAA data buoys. Based on January and July data from 1981 and 1982.

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I. Information for Users

A. Introduction

This report was prepared to describe the wind and wave conditions that can be expected in U.S. Coast Guard geographical operating areas. The intent is to provide operational program managers a tool to use when considering the potential applications of conventional and advanced marine vehicles to Coast Guard missions. It is also intended to supplement research determining the feasibility of alternate energy sources that involve wind or waves. While these data are the most accurate available, the chance occurrence of conditions in excess of conditions reported is possible. This work was performed by the National Climatic Data Center under the direction of the U.S. Coast Guard Research and Development Center for the Office of Research and Development.

B. Data Discussion

Data for this volume were obtained from two sources, NOAA Data Buoys and the Army Corps of Engineers. They are called NOAA Buoy and Army Data, respectively, throughout this document. Figures 1 and 2 show the locations applicable to the data. NOAA Buoy data are in situ measurements and are documented quite thoroughly in the book, Climatic Summaries for NOAA Data Buoys (U.S. Department of Commerce, 1983), and in the report by NOAA/NDBO (1982). Army Data are obtained from hindcast models and are documented in Resio (1981) and U.S. Army (1982). Details relating to each data source are followed by a more general description of the wind and wave data in the following sections.

(1) NOAA Buoy Data

Elements summarized from the NOAA Buoys are:

Significant Wave Height: Data are gathered synoptically on a hourly or three hourly basis over a 20-minute interval; the system accuracy is $\pm 0.5\text{m}$.

Mean Wave Period: The average period of all waves present during the 20-minute sampling period; accurate to \pm one second.

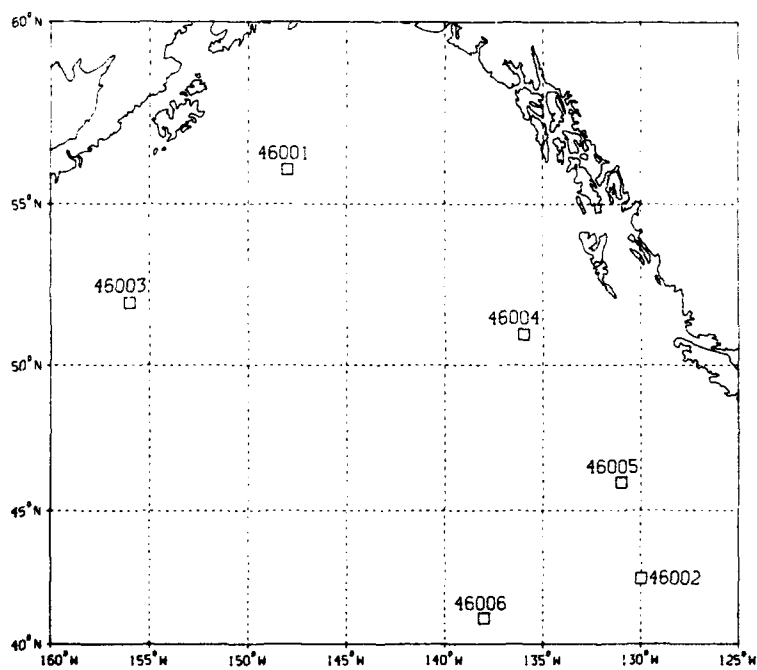
Wind Speed: The average speed during the 8.5-minute sampling period every hour; accurate to ± 1.9 knots or 10%, whichever is greater.

Wind Direction: Sampled over 8.5 minutes every hour; accurate to ± 10 degrees.

Peak Wind Gust: The maximum 4- or 8-second gust during the wind sampling period.

Gulf of Alaska and Pacific Ocean

Buoys



Buoy Locations			Water Depth meters
Buoy 46001	56.0°N	147.0°W	4113
Buoy 46002	42.5°N	131.0°W	734
Buoy 46003	52.0°N	156.0°W	4445
Buoy 46004	51.0°N	136.0°W	3629
Buoy 46005	46.0°N	131.0°W	2835
Buoy 46006	41.0°N	138.0°W	4169

Figure 2. NOAA Data Buoy Center (NDBC) data locations for the western U.S. Data are catalogued by buoy station numbers (e.g., 46001).

Buoy winds are sampled at a height of 5 or 10 meters. Though the differences between 5 and 10 meters may be small (about 5%; see Dobson, 1981), the adjustment to higher heights may be significant. Pore, Kennedy and May (1981) have found that ship winds in the Great Lakes averaged about 1.5 times the buoy winds, with a root-mean-square difference of 4.8 knots. In that study, the ship winds were measured at about 20m for a sampling period of about one minute, whereas the buoy winds were measured at 5m over 8.5 minutes.

Instrument heights above water for the buoys were:

5m: 41004, 41005, 44001, 44002, 44003, 45001, 45002

5m and 10m mixed: 42001, 42003, 46005

10m: All others in this report.

(2) Army Data (Wave Information Study - WIS)

In response to a requirement for more data in the coastal zone, the U.S. Army produced hindcasts of wave data for each 3-hourly time from 1956 through 1975. A hindcast is an estimation of wave conditions based on foregoing winds. Other influences considered in the model were refraction, diffraction, shoaling, bottom friction, and wave-wave interaction. The winds were estimated on the basis of observed winds and pressure gradient data. Hurricanes were not modeled by the Army Data contained in this report; but non-hurricane conditions, representing the vast majority of the time, were well modeled. Characteristics of the data are as follows:

Significant Wave Height: The root mean square of sea and swell; i.e.,

$$H_s = (H_{\text{sea}}^2 + H_{\text{swell}}^2)^{1/2}$$

Wave Period: The longer period (of sea or swell) was used to approximate the peak period. Note that this is different from the NOAA Buoy data which shows average, hence usually somewhat shorter, periods.

Wind data were not available from the Army when this report was compiled.

(3) Wave Data. Wave heights in this report are expressed in terms of significant height, H_s , and are considered to be averages of approximately 20 minutes. Significant height is the average height of the highest one-third of all waves present. It can be related to extreme waves (H_e) in the seaway by the relationship

$$H_e = H_s ((\ln N)/2)^{1/2}$$

where N is the number of waves in the record (World Meteorological Organization, 1976). A practical upper limit is approximately

$$H_e \approx 1.8 H_s \quad (\text{Simpson and Riehl, 1981}).$$

Maximum wave heights along the West Coast come mostly from winter storms, while for the East Coast, hurricanes and extratropical storms both contribute. Hurricane data are poorly represented in the summaries (not at all in Army Data) because hurricanes are such rare events. Significant wave heights of 10m (33 ft) are not unusual in hurricanes, and an extreme hurricane may generate waves of 15-18m (50 to 60 ft) (Simpson and Riehl, 1981).

Wave periods are average zero upcrossing periods (T_z) for NOAA Buoy data and appropriate peak periods (T_p) for Army data. T_z can be considered an average value, while T_p represents the period of the waves with the greatest energy. Statistically they are related by the approximation

$$T_z = 0.75 T_p$$

though there may be significant excursions from this.

For further details, the reader may wish to consult James (1966, 1969), Thom (1971), and Whitmarsh (1934).

(4) Wind Data and Gusts. Wind directions are in degrees from true North and indicate the direction from which the wind is blowing. Wind speeds are in knots, except for the Cape Canaveral example, which uses meters per second.

The gust factor G is the factor by which a sustained mean wind v over sampling time t must be multiplied to approximate the "instantaneous" peak gust v_p during the time. The general expression is $G = v_p / v$.

In order to show how gust factor can vary with height, Kaufman (1977) has related gust factors for peak gusts at 18.3m elevation at Cape Canaveral, Florida, to the gust factors at other elevations.

The general expressions he used, for arbitrary elevation Z in meters, were:

$$G = 1 + 1/g_o (18.3/Z)^P$$

where, at an assumed elevation of 18.3m, for peak wind speed v_p (in mps, measured during an interval of t minutes):

$$P = 0.283 - 0.435 \exp(-0.2v_p)$$

and

$$g_o = 0.085 (\ln t/10)^2 - 0.329 (\ln t/10) + 1.98 - 1.887 \exp(-0.2 v_p)$$

These approximations are valid for winds over 4 m/s and $t < 10$ minutes. The solutions to the above for 10-minute peak winds measured at 18.3m can be approximated by the "Gust Factor" graph in Figure 3.

Scatter diagrams of gust factors for various data buoys are shown in Figure 4. Unlike Figure 3, the wind speed values are 8.5-minute averages in knots. These diagrams were derived from buoy data from January and July 1981 and 1982 for representative locations. The gust factor G was computed from:

$$G = (\text{peak 4- or 8-second gust}) : \text{average speed for 8.5 minutes.}$$

The 4- or 8-second interval is noted on each graph and was measured during the 8.5-minute sampling time. The 4- or 8-second gusts are used because it is impossible to measure an actual "instantaneous" gust. The number of data points for each graph is also indicated by the value of N . Note that the gust factors for high wind speeds tend to stabilize at values between 1.2 and 1.4.

The highest winds along the East and Gulf Coast areas occur during hurricanes. Because of their rarity, hurricane data are represented only spottily in the wind summaries. However, virtually all East and Gulf Coast locations are vulnerable to hurricanes. Gust factors can reach 1.5 around certain types of structures in hurricanes, with averages of 1.3 at the surface and 1.1 to 1.2 aloft (Simpson and Riehl, 1981). Gusts can reach 150 knots, and speeds can rise and fall dramatically with the passage of the eye of the storm. A gust record from Gregory, Texas, during the passage of Hurricane Celia in August 1970 showed gusts to 120 knots followed by a lull of 7 knots in the eye in less than 30 minutes. Within another half hour, gusts were up to 116 knots (Simpson and Riehl, 1981).

Further details on wind data may be obtained from the World Meteorological Organization (1981) and Frost (1982).

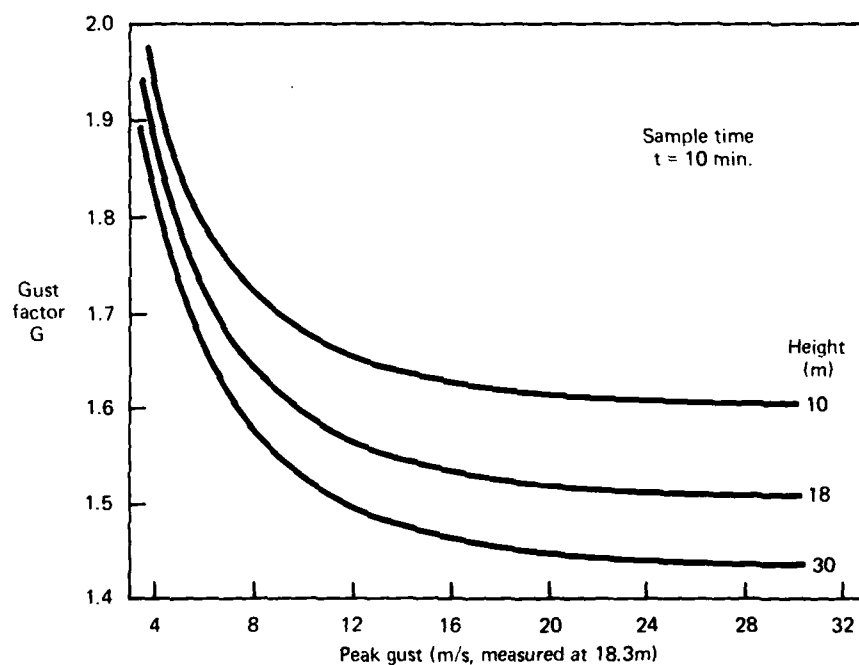


Figure 3. Gust factor as a function of peak wind during a 10-minute interval for various heights (after Kaufman, 1977). Graph developed for Cape Canaveral, Florida. Note that wind speeds are peak gust values expressed in meters per second.

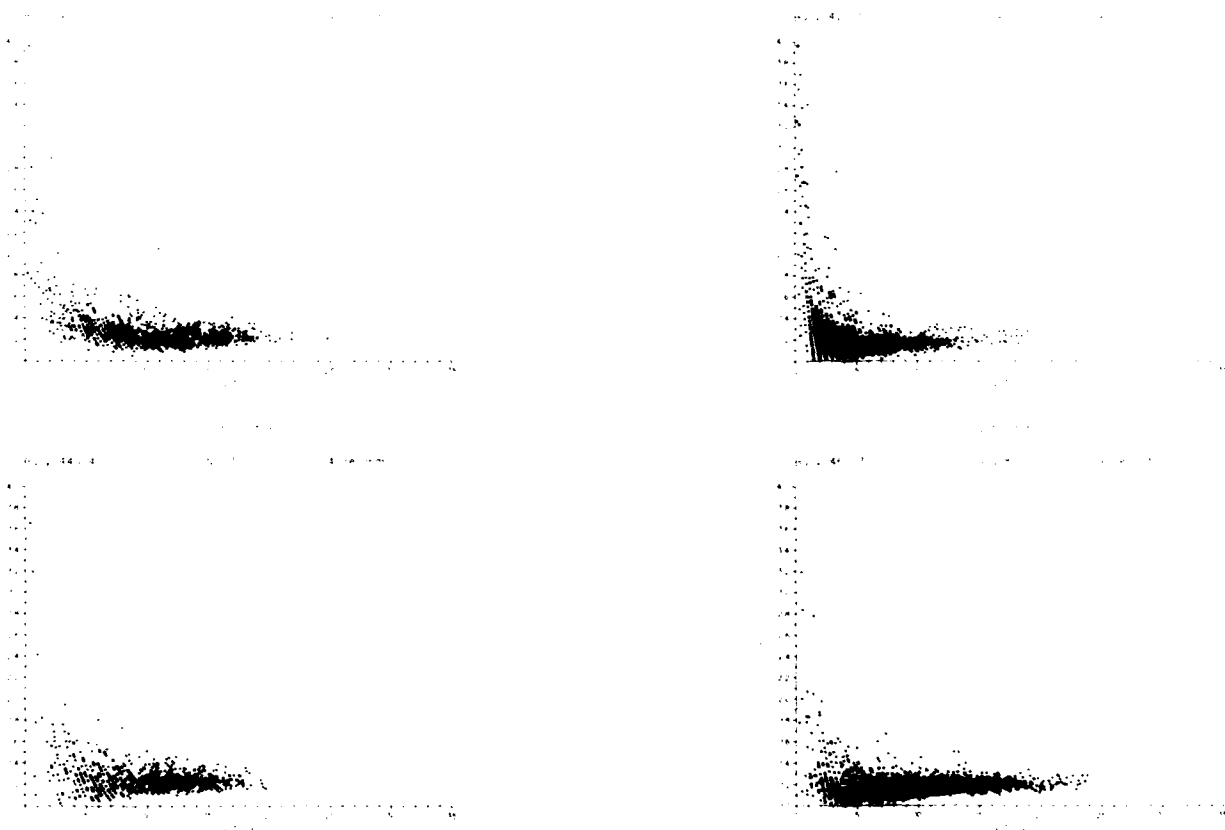


Figure 4. Gust factor graphs for selected NOAA data buoys. Based on January and July data from 1981 and 1982. Wind speeds are 8.5-minute averages in knots.

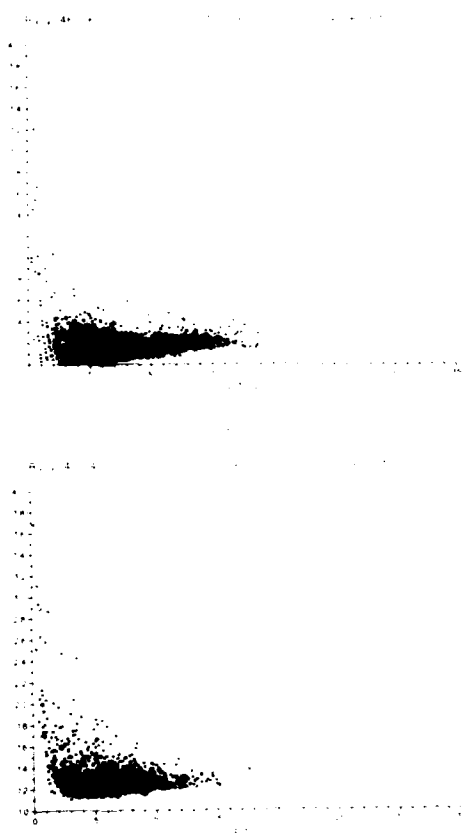


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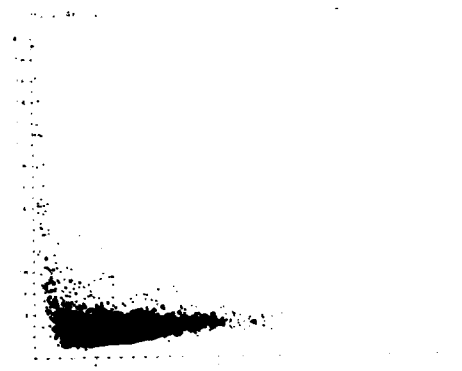
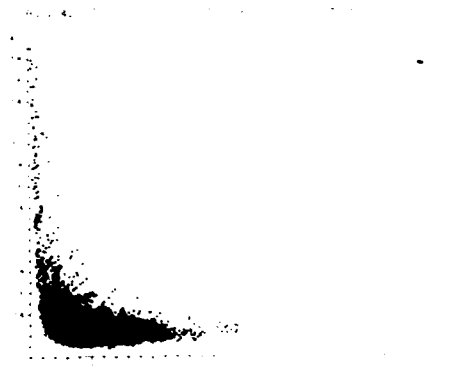
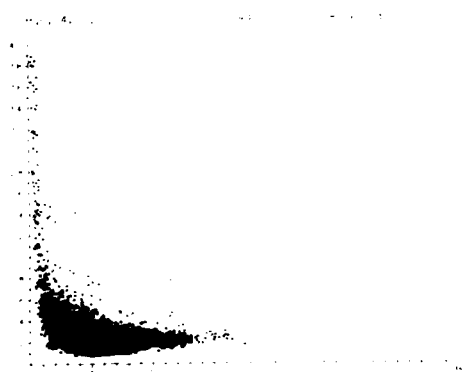
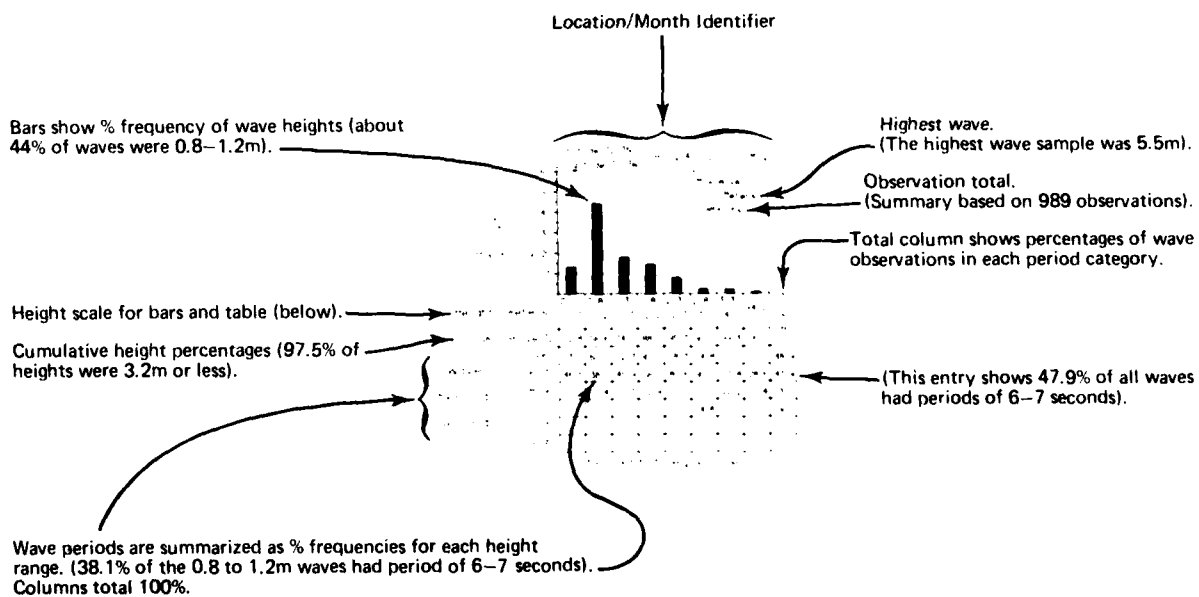


Figure 4 (continued).

C. Data Format Key and Explanations

The following legends explain how to read the individual data graphs.

WAVE HEIGHT/PERIOD (SECTIONS III-A and IV-A)

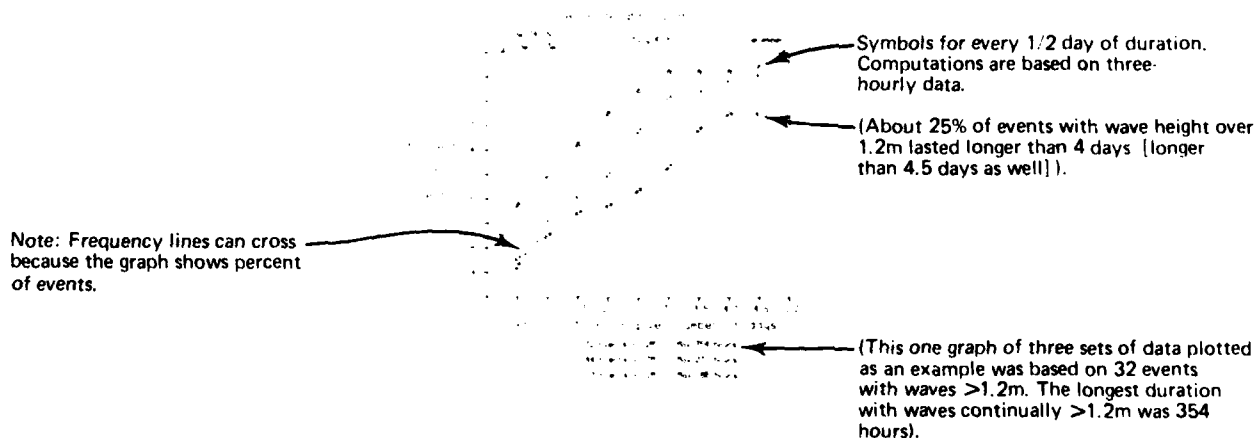


* When shown means data less than 0.05% (i.e., rounds to less than 0.1%). Totals may not add to exactly 100% because of rounding.

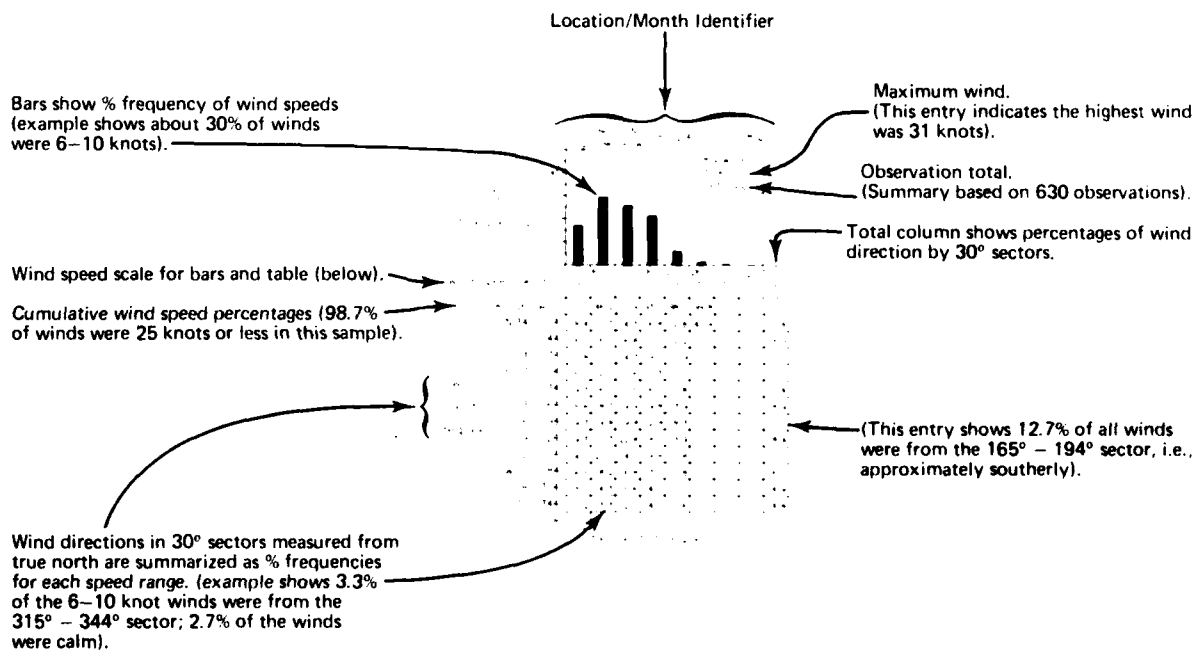
WAVE HEIGHT PERSISTENCE (SECTIONS III-B and IV-B)
AND WIND SPEED PERSISTENCE (SECTION III-D)

Both data sets use the same format.

The plots show percentages of events with a duration above a given threshold. Note the ordinate is inverted with 100% at the bottom. An event begins with the wave height (or wind speed) rising above the threshold and ends when the value dips to the threshold. A duration is counted as a single event, regardless of its length. Three sets of thresholds are plotted on this example. To get frequency of occurrence, refer to the other data summaries.



WIND SPEED/DIRECTION (SECTION III-C)



* When shown means data less than 0.05% (i.e., rounds to less than 0.1%). Totals may not add to exactly 100% because of rounding.

● 1997年10月1日起，凡在我国境内销售货物的单位和个人，均应按销售额的17%缴纳增值税。

Wind speed in knots.

Cumulative relative frequency (52.2% of winds are ≤ 22 kts.).

Standard deviation of wind speed. _____

Maximum wind measured.

Minimum wind measured. .

- Monthly columns.

Annual summary.

D. References

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II. Wind Speed Frequency Analysis for Wind Power Applications

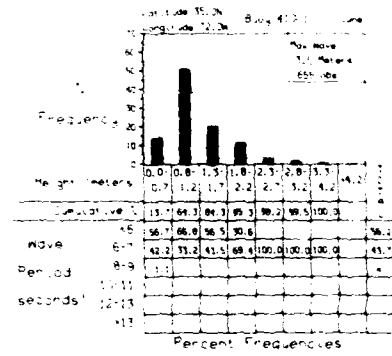
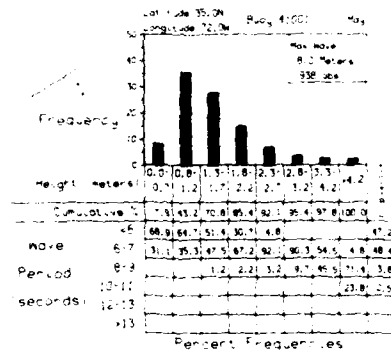
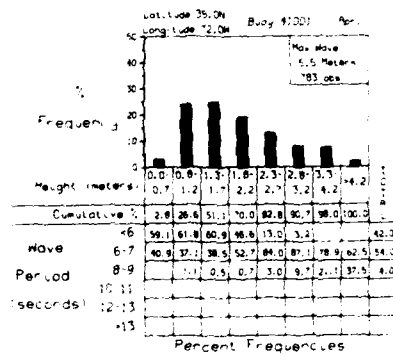
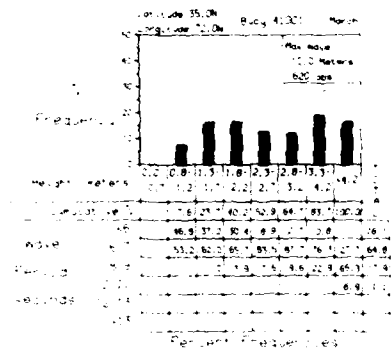
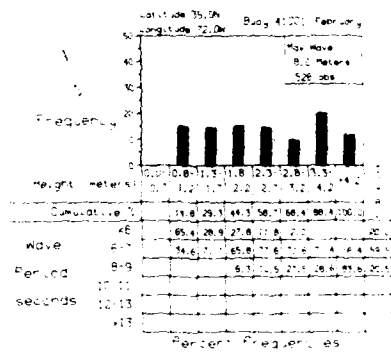
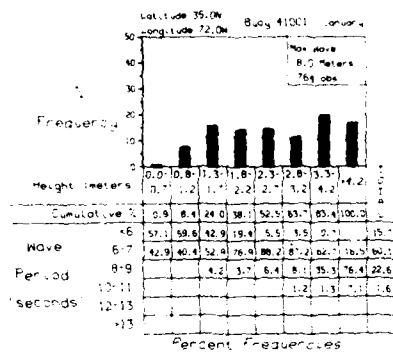
Buoy data can be considered as being representative of open oceanic or extremely exposed coastal locations. Wind data from the Cape Hatteras Weather Service Office for the period 1957-1981 are presented in the following table to represent a somewhat more sheltered coastal location. The wind instrument is nearly one mile inland, separated from the ocean by low dunes and scrub pine. The instrument elevation is about 10m above ground. The format of Table I shows frequencies and cumulative relative frequencies for one-knot intervals. The total number of data points, means, and standard deviations are also shown. The same format is used for the buoy wind speed data arrays (see section I-C).

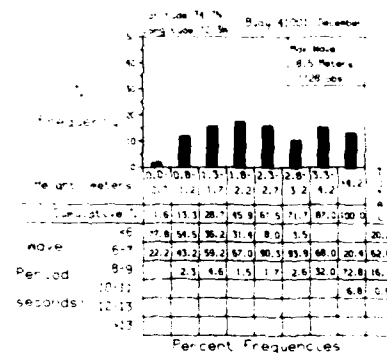
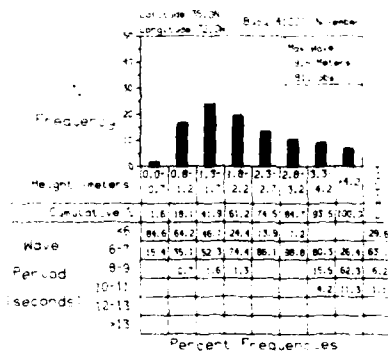
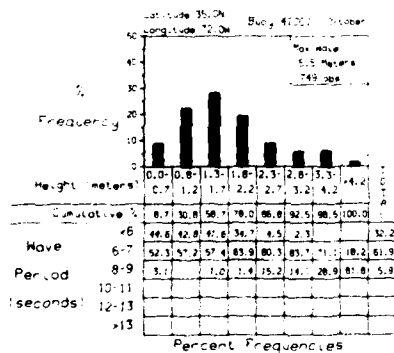
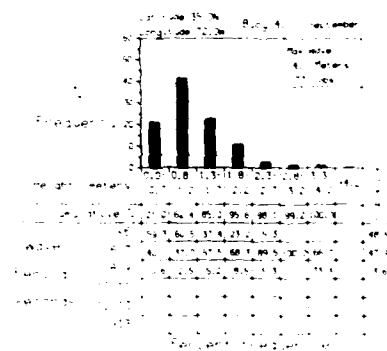
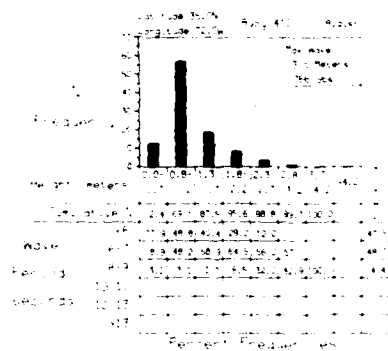
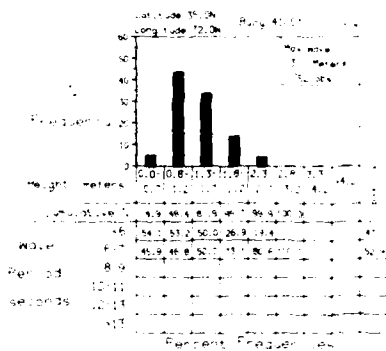
Further details regarding coastal zone wind energy can be obtained from the reports by Garstang, et al., listed in the references.

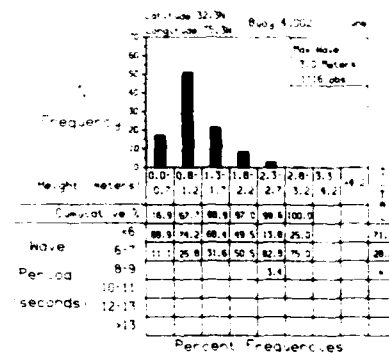
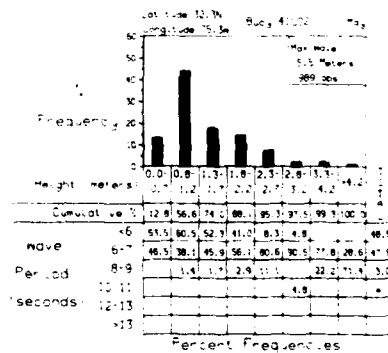
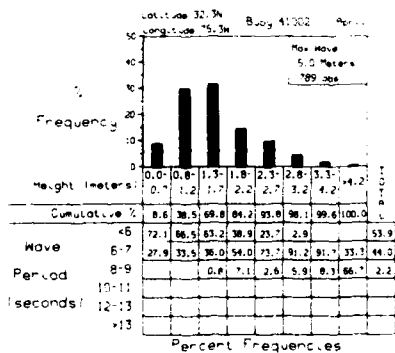
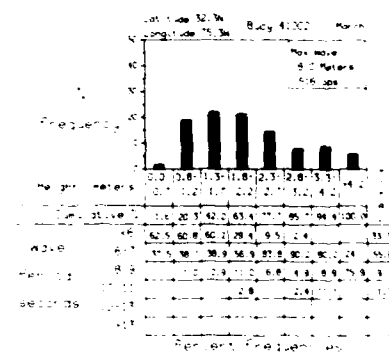
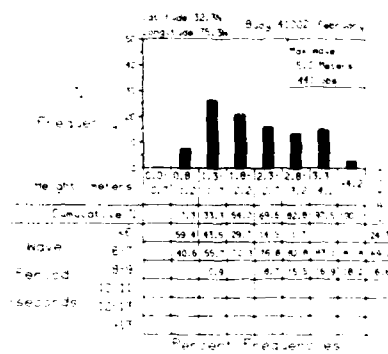
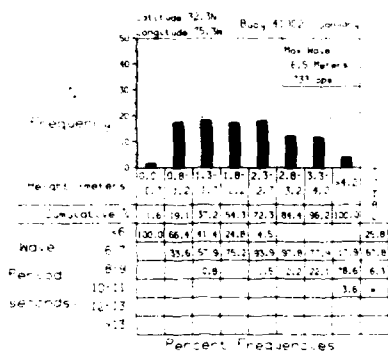
TABLE I

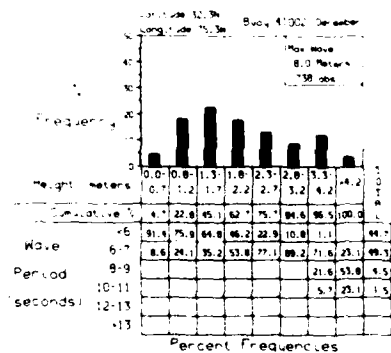
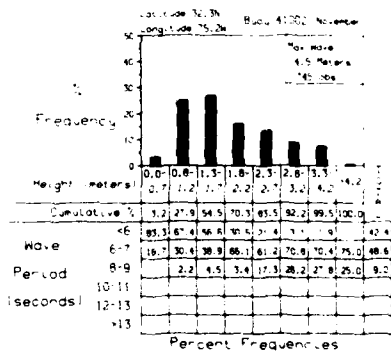
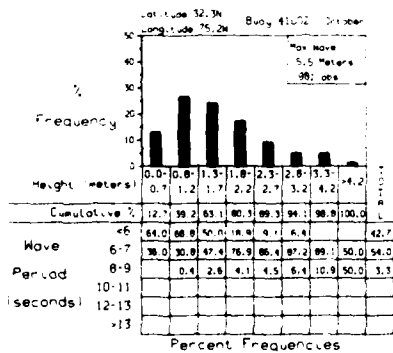
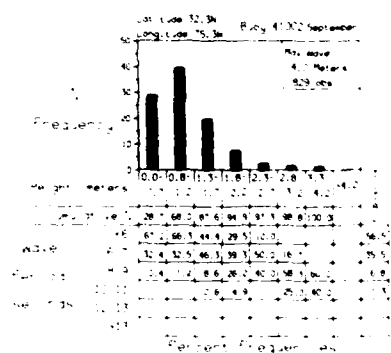
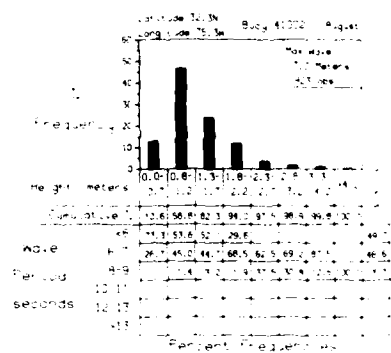
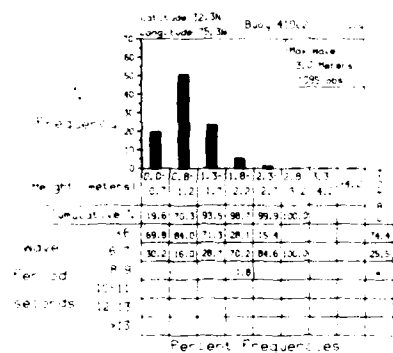
Wind speed Cape Hatteras, North Carolina, 1957-1981.

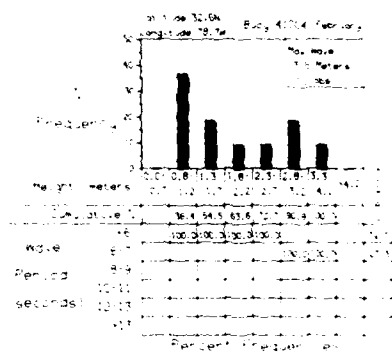
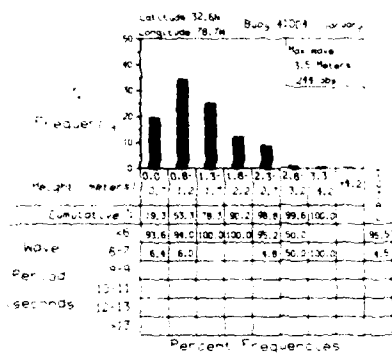
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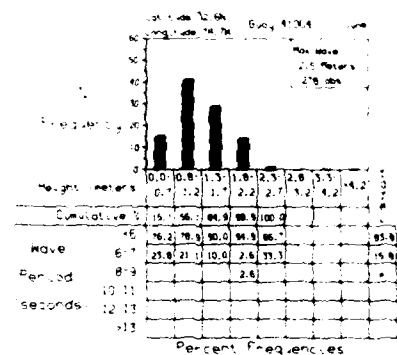
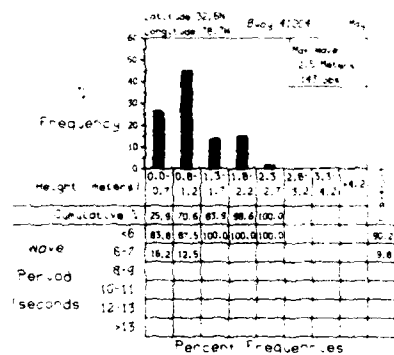


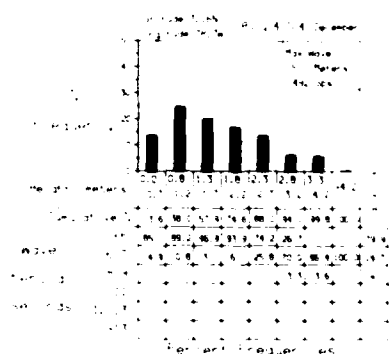
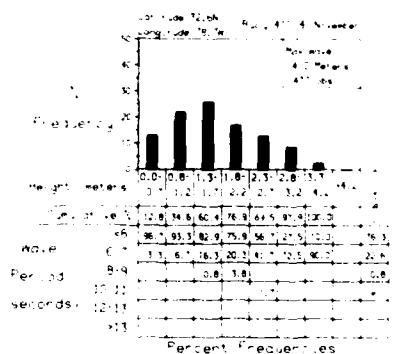
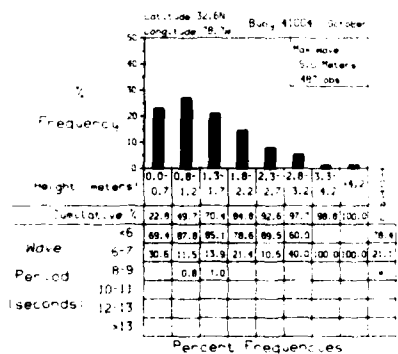
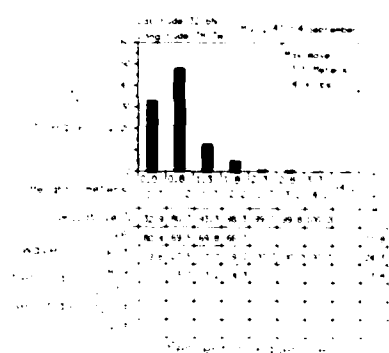
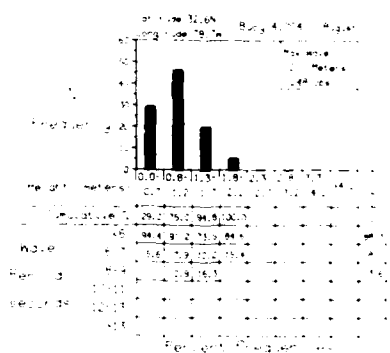
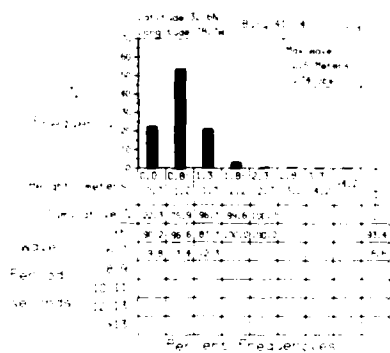


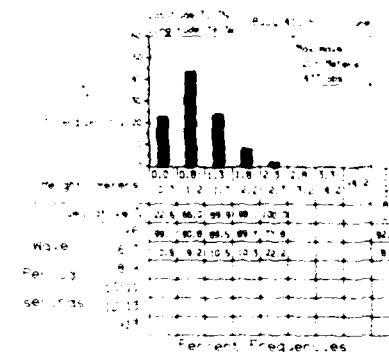
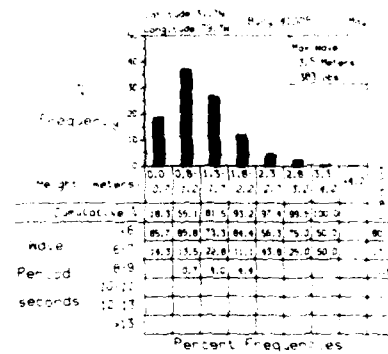
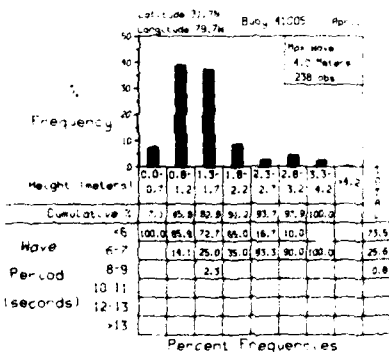
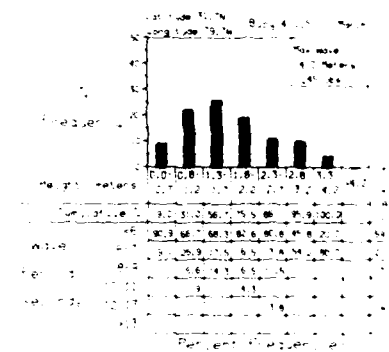
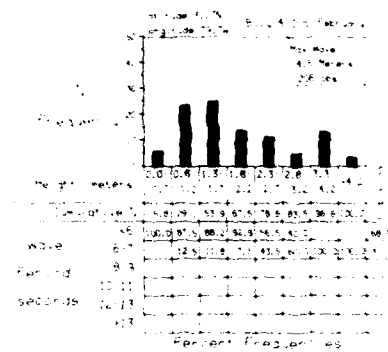
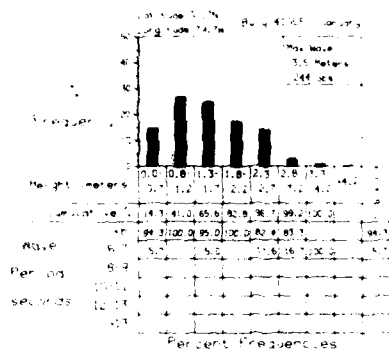


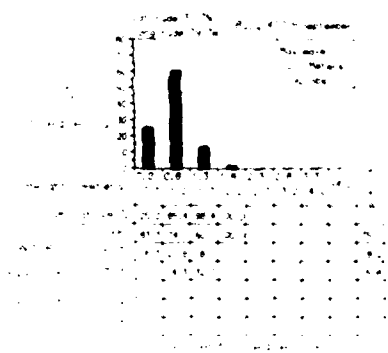
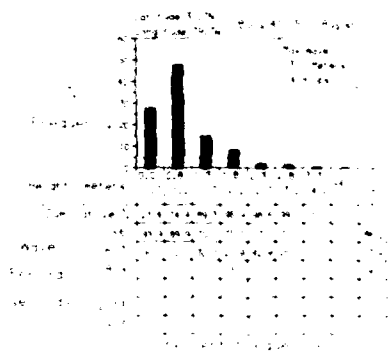
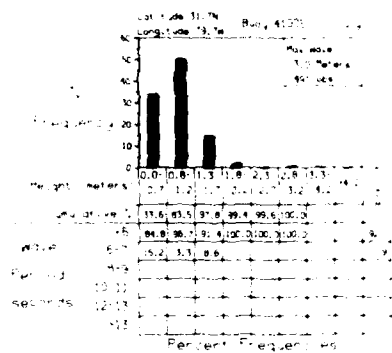
March

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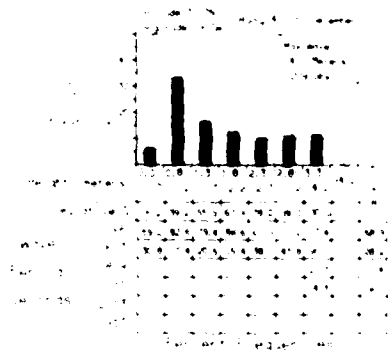


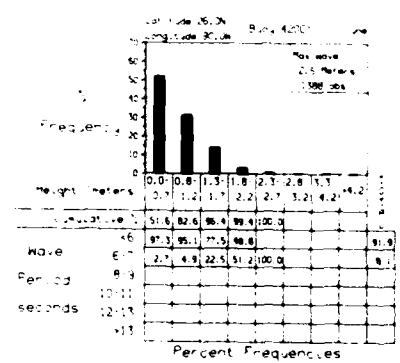
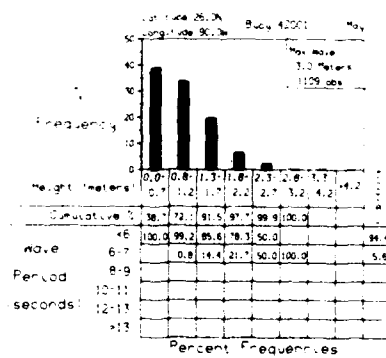
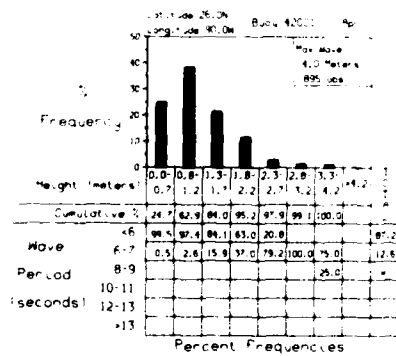
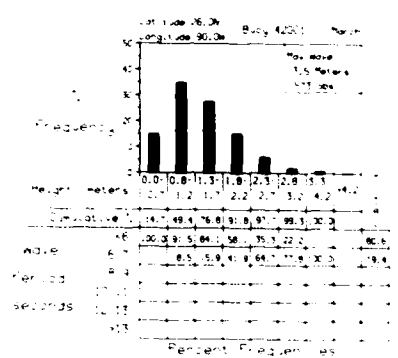
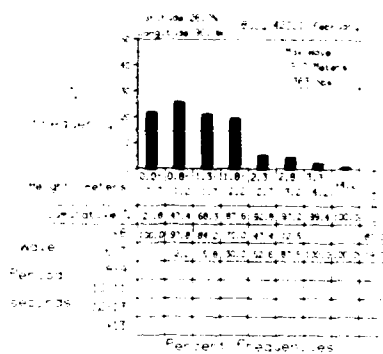
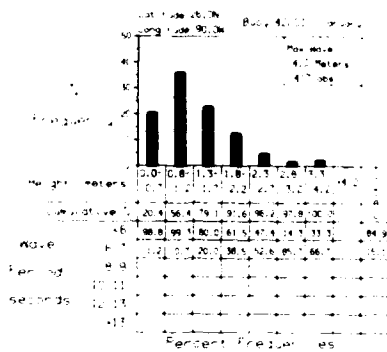
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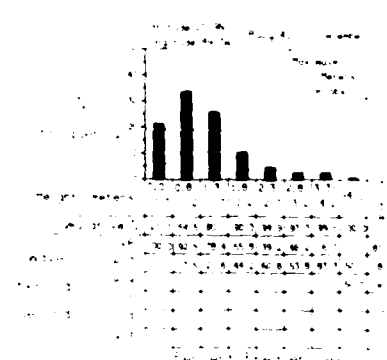
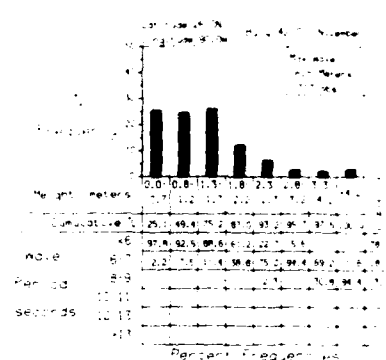
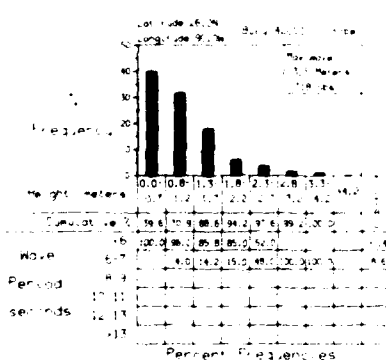
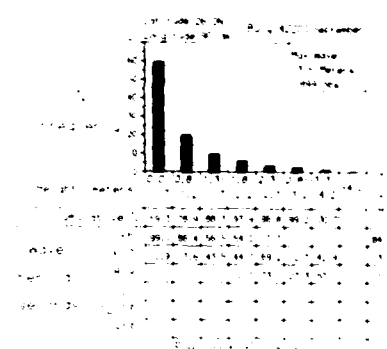
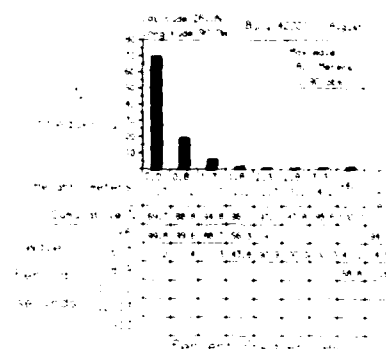
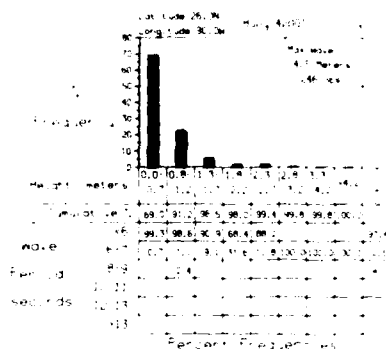
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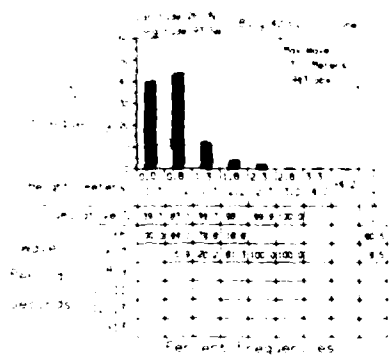
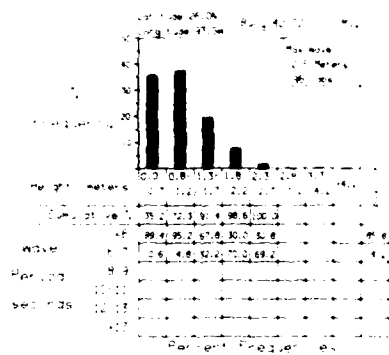
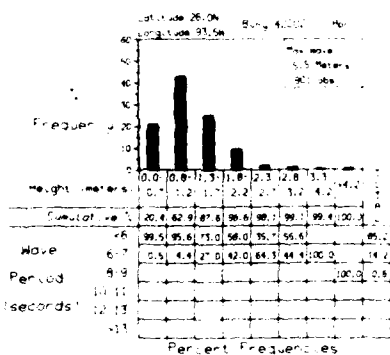
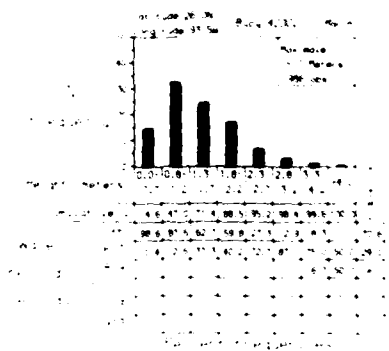
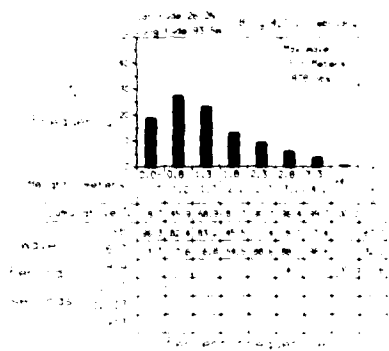
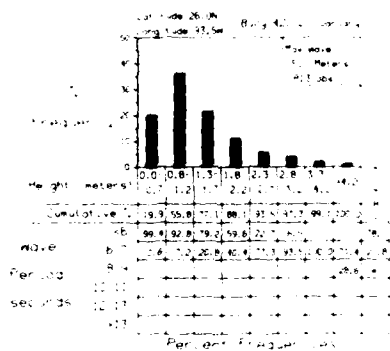
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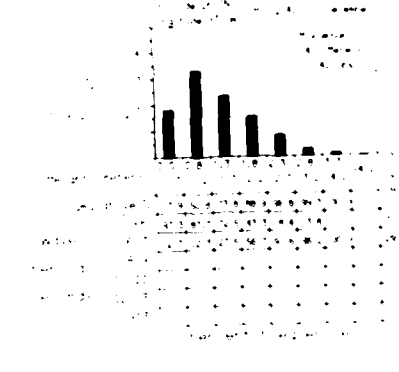
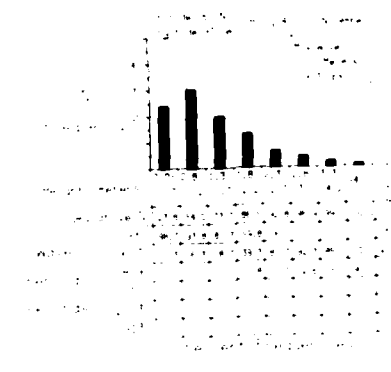
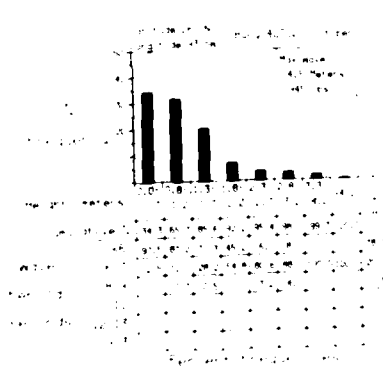
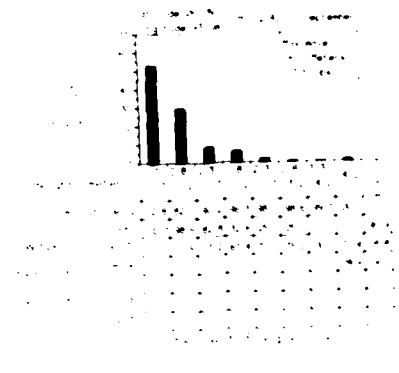
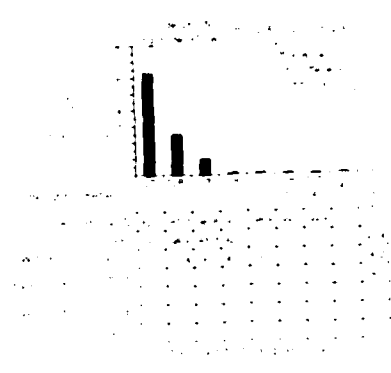
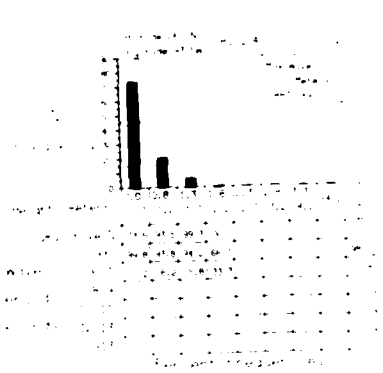
November

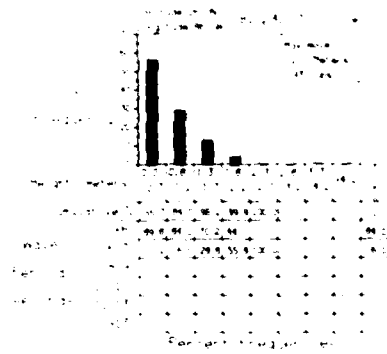
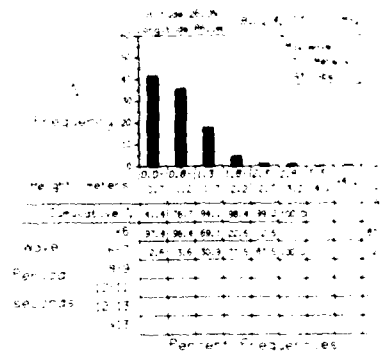
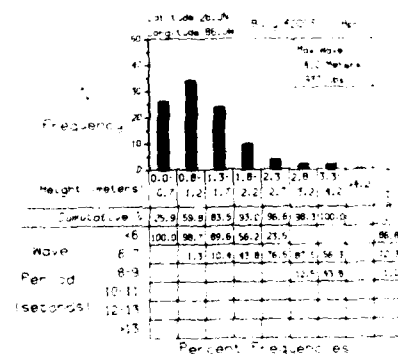
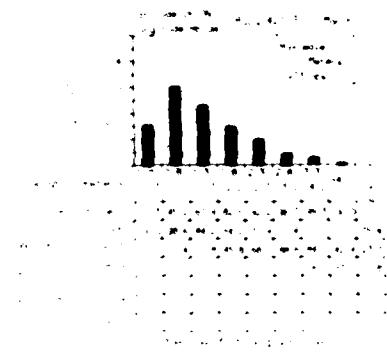
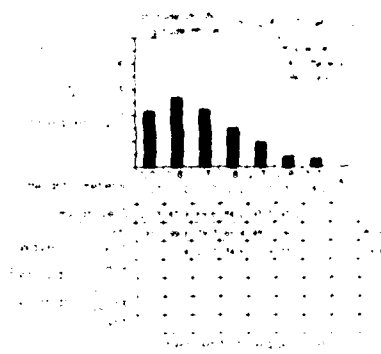
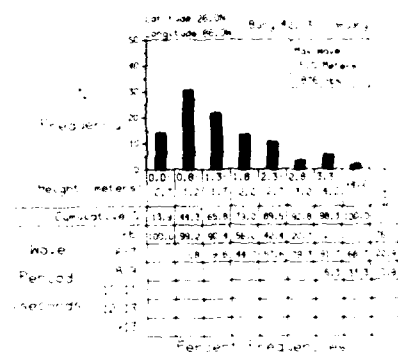


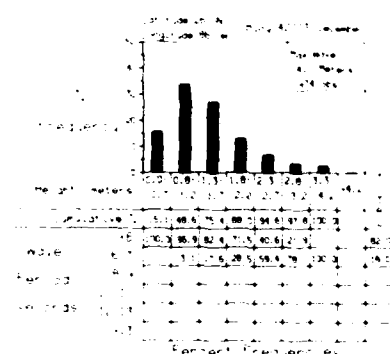
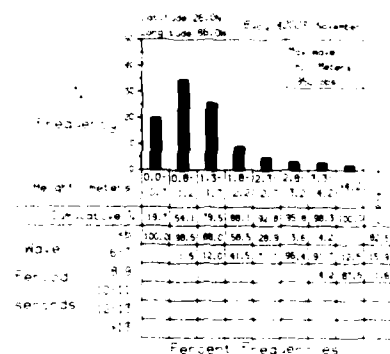
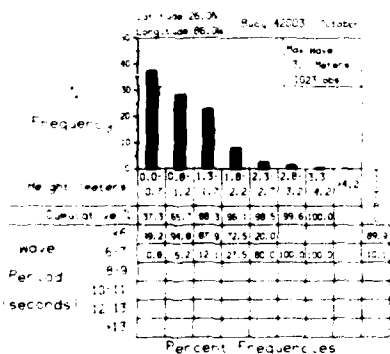
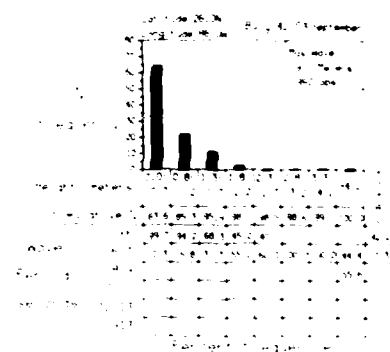
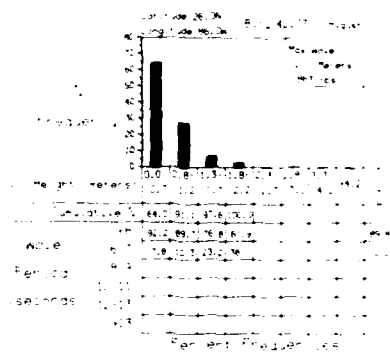
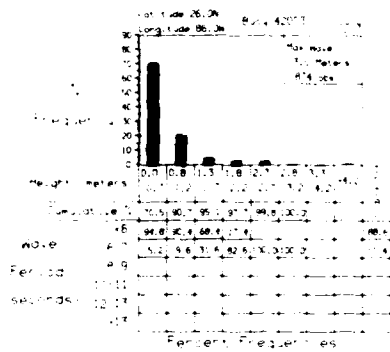


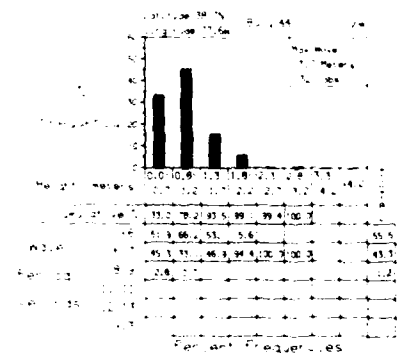
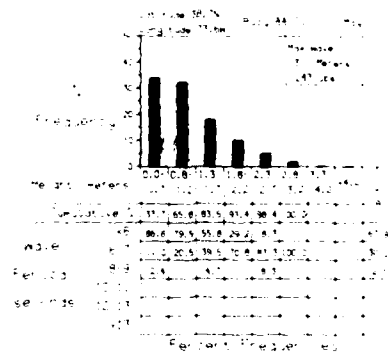
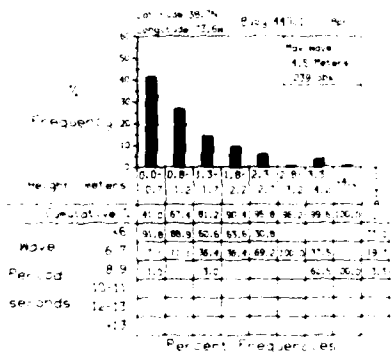
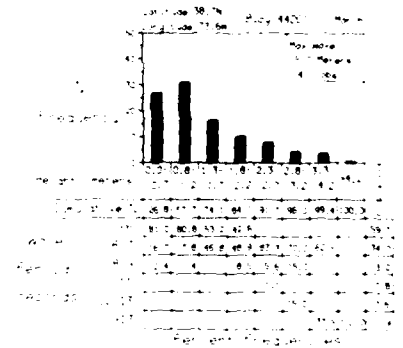
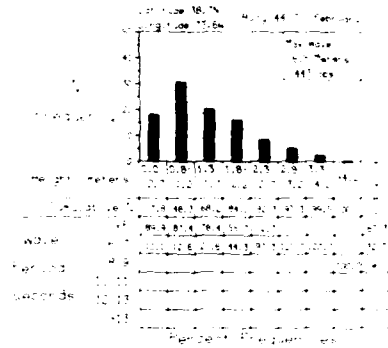
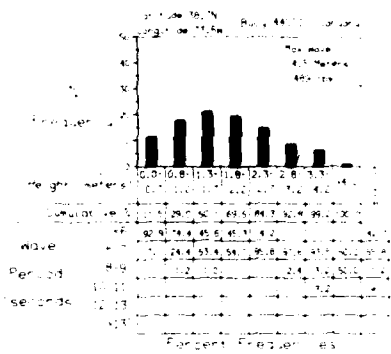


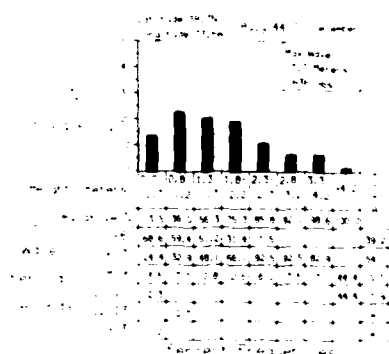
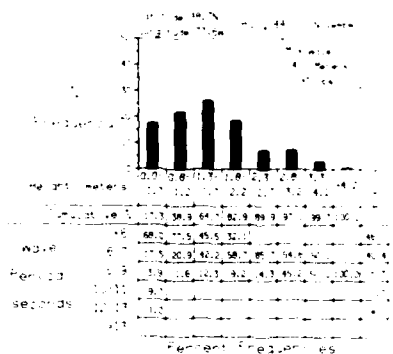
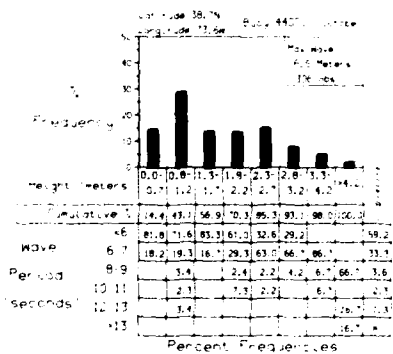
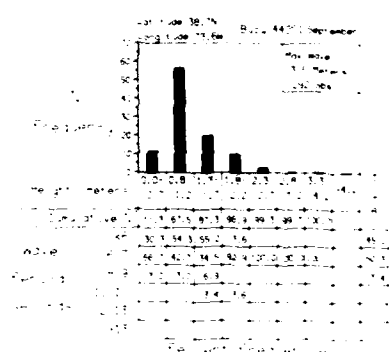
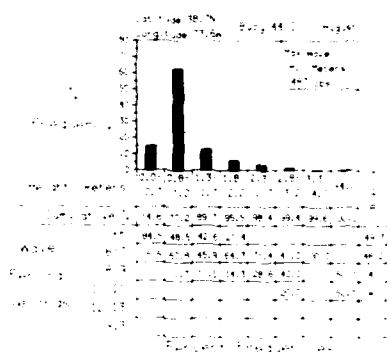
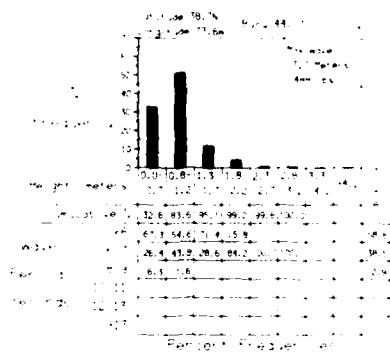












No Data Available for
January

No Data Available for
February

No Data Available for
March

No Data Available for
April

No Data Available for
May

No Data Available for
June

No Data Available for
July

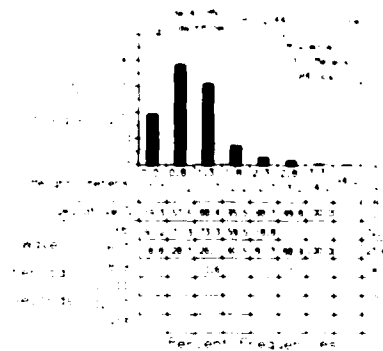
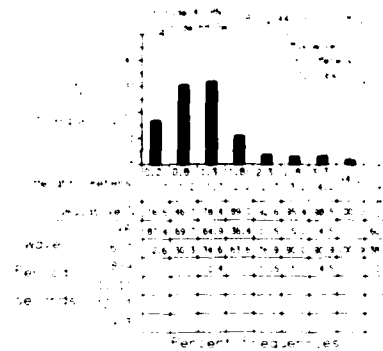
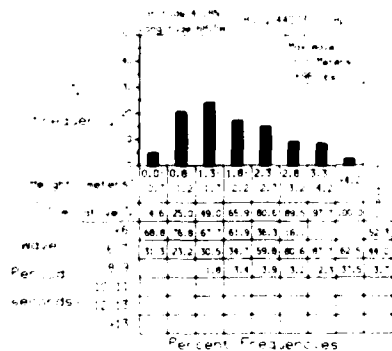
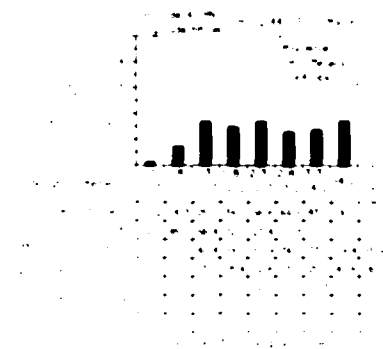
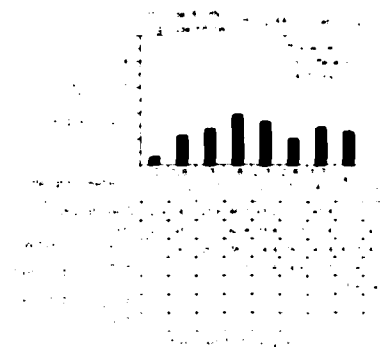
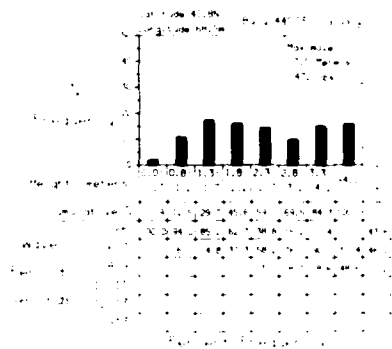
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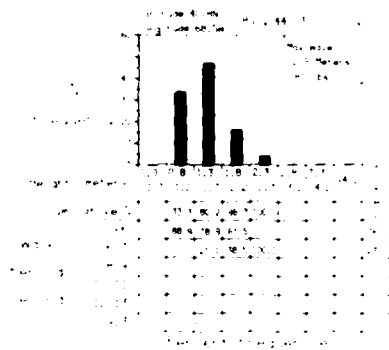
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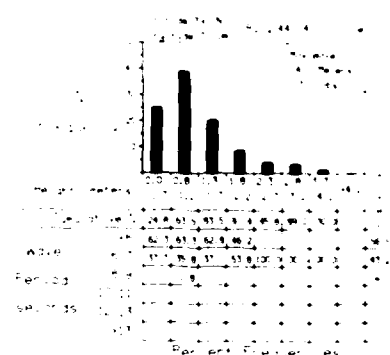
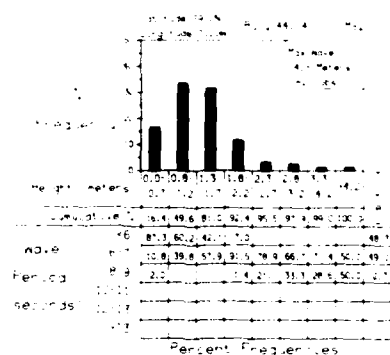
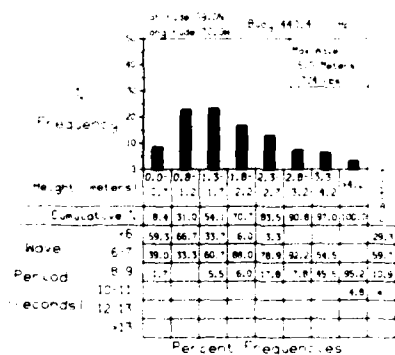
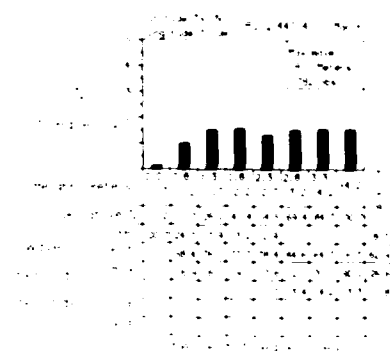
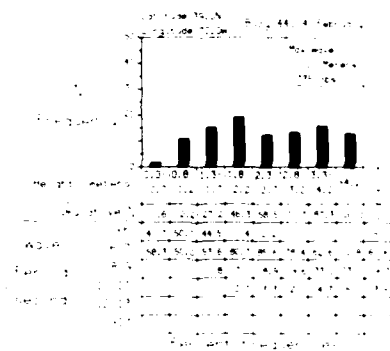
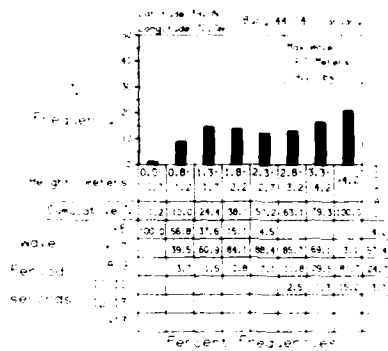
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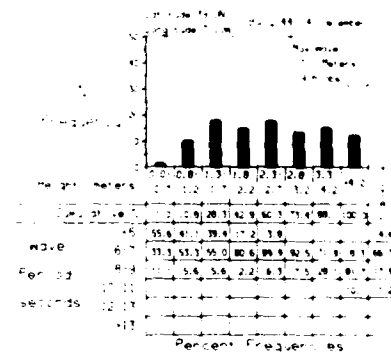
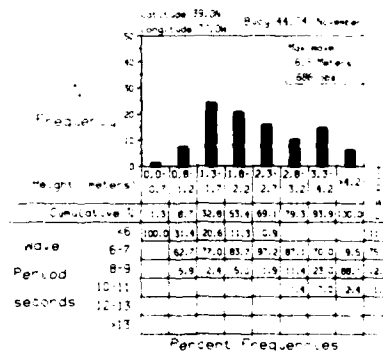
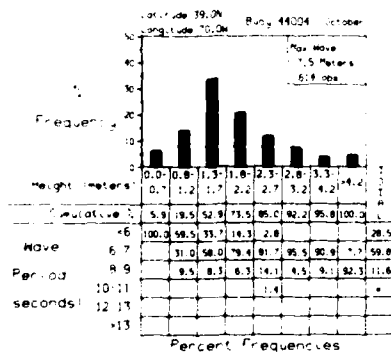
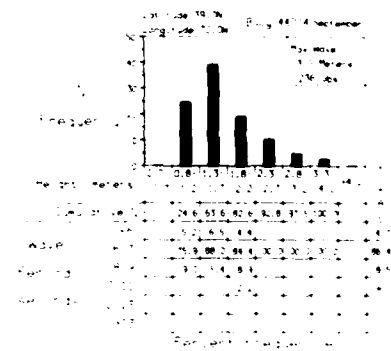
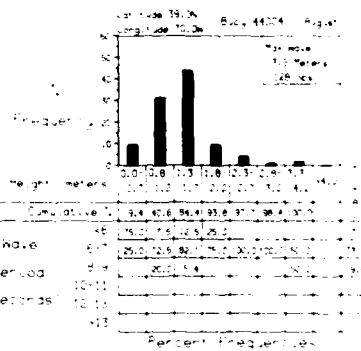


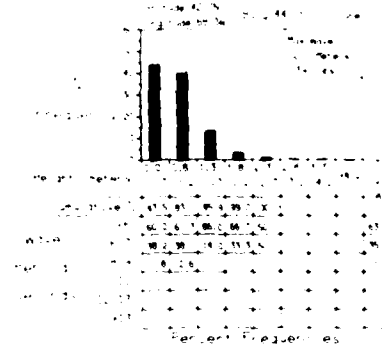
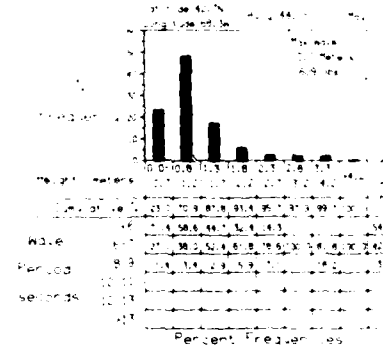
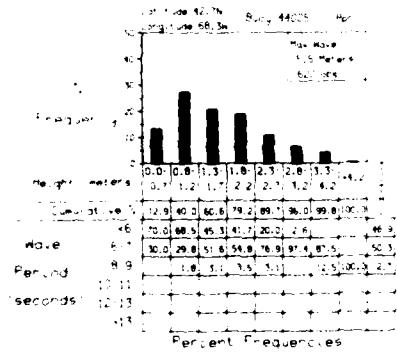
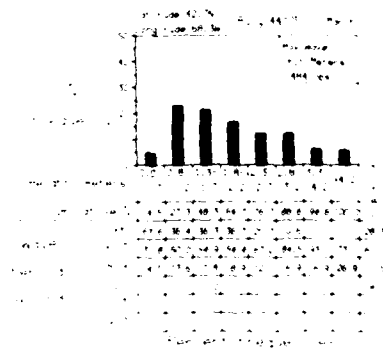
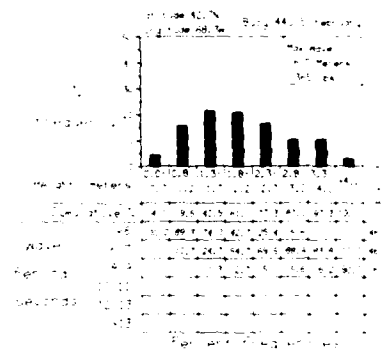
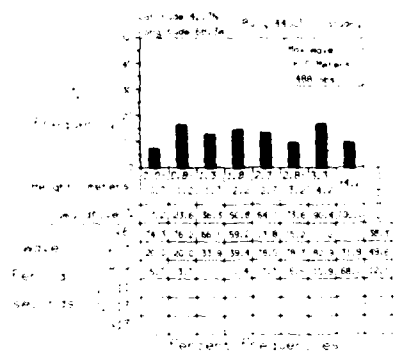


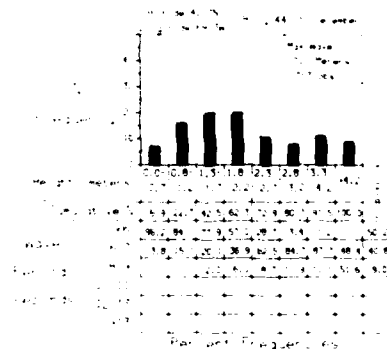
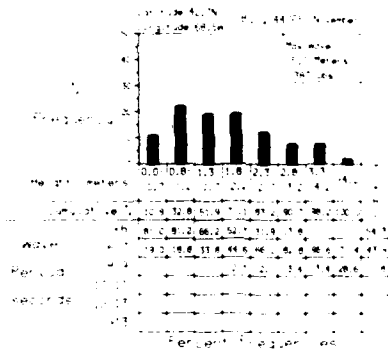
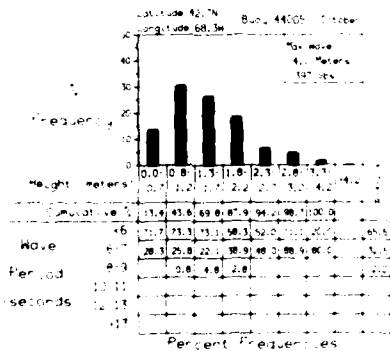
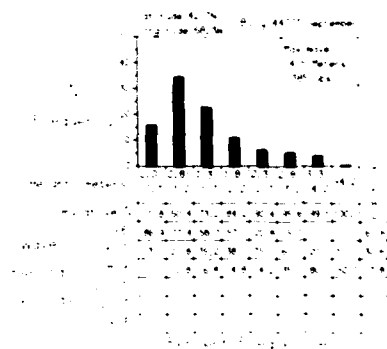
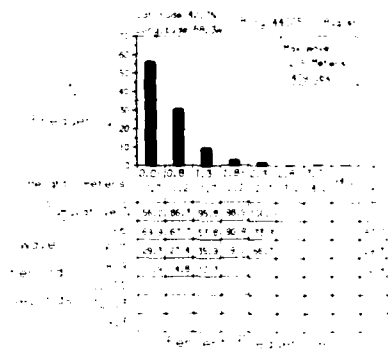
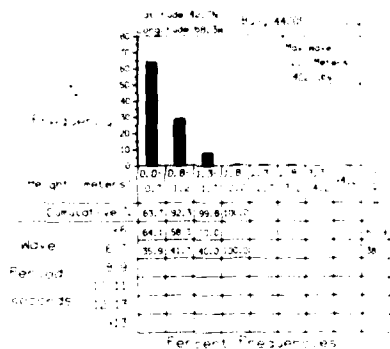


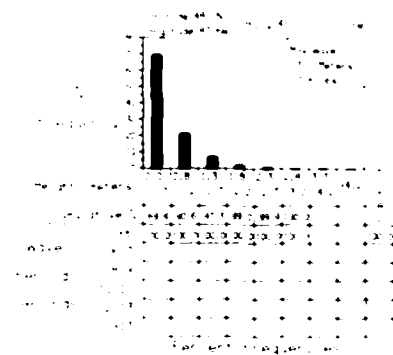
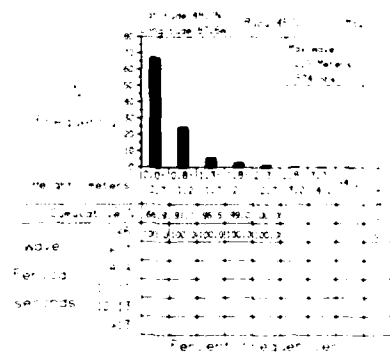
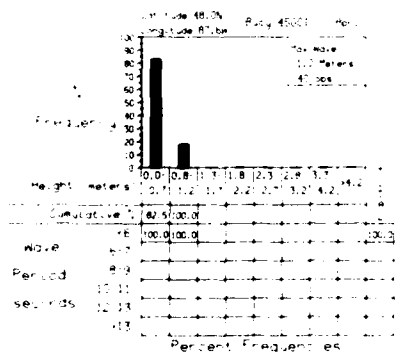
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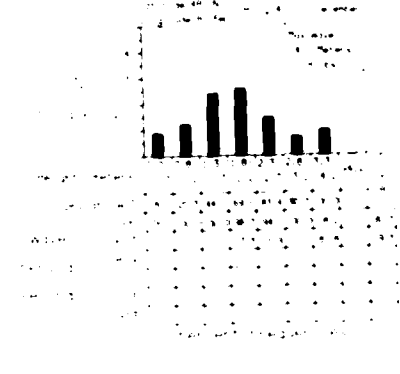
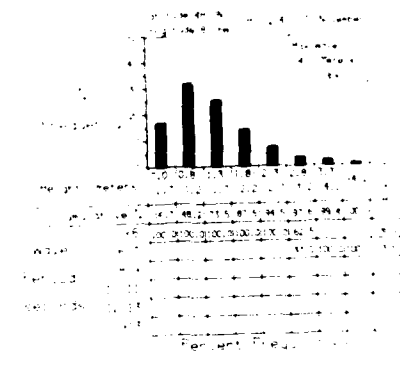
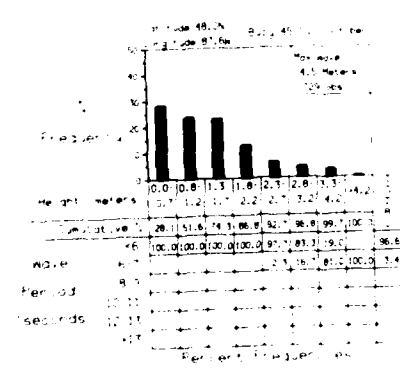
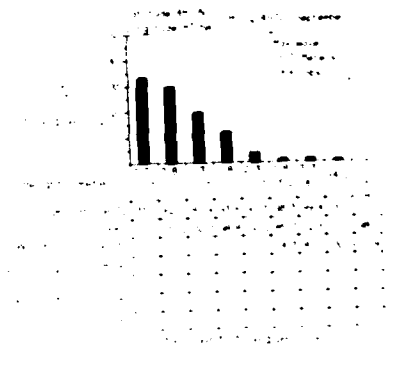
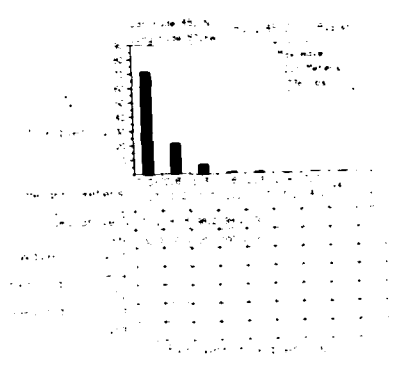
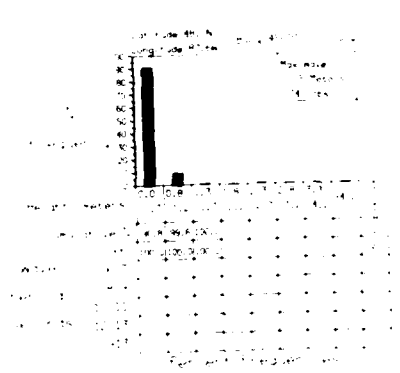
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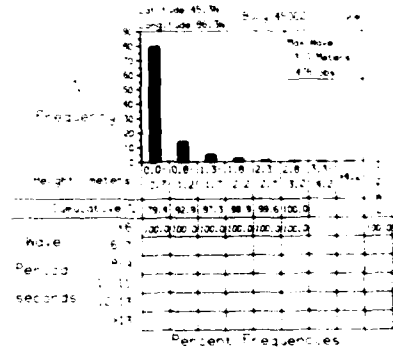
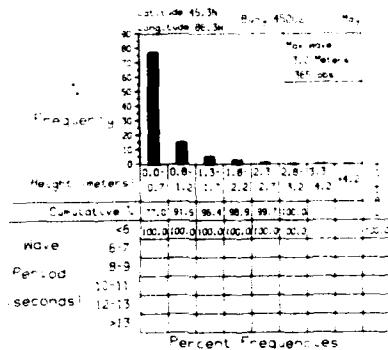
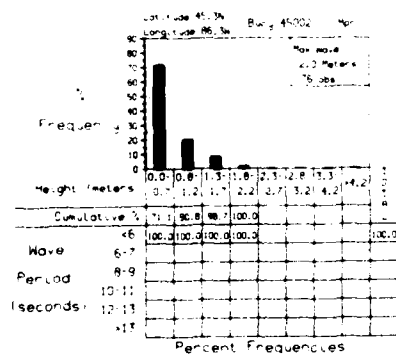
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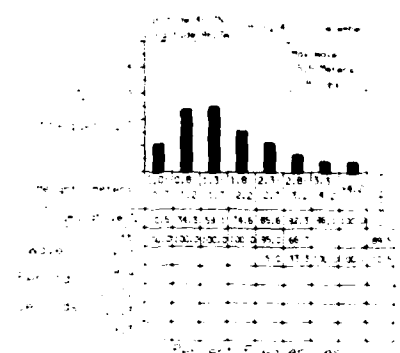
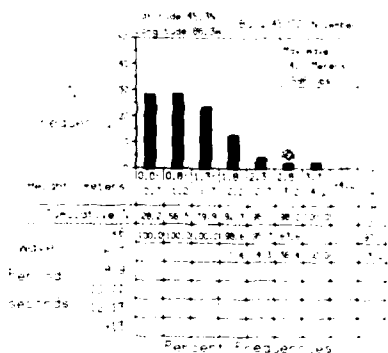
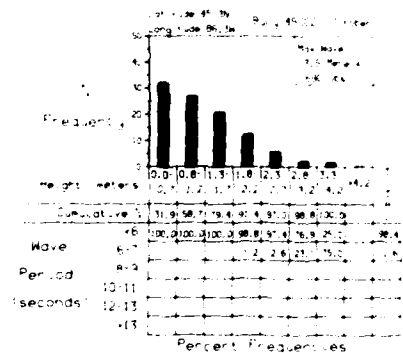
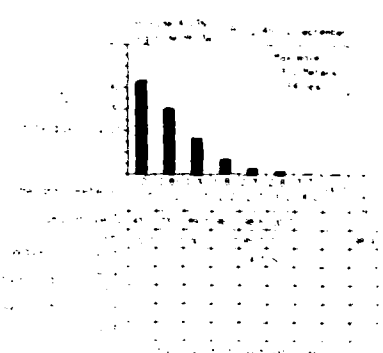
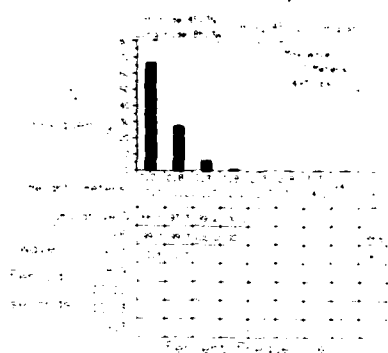
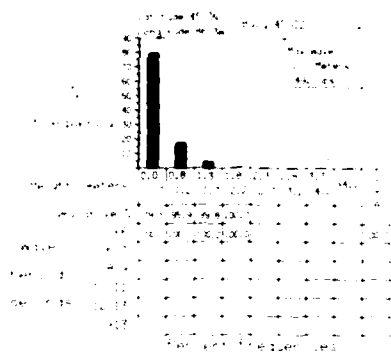
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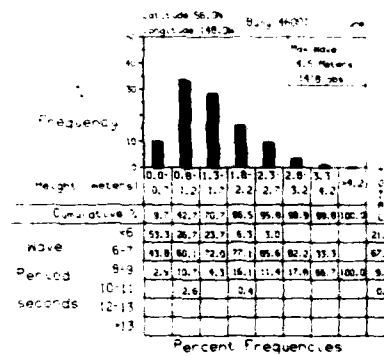
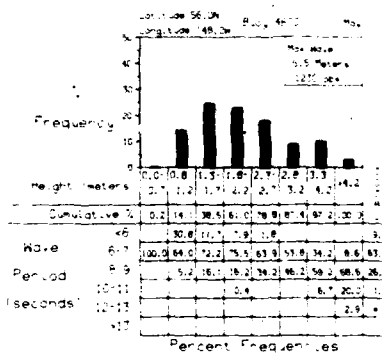
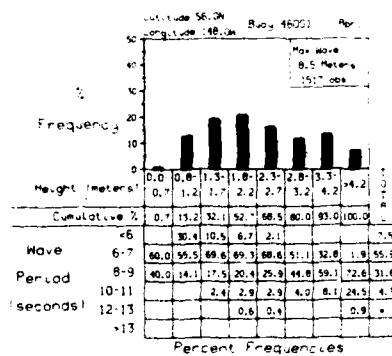
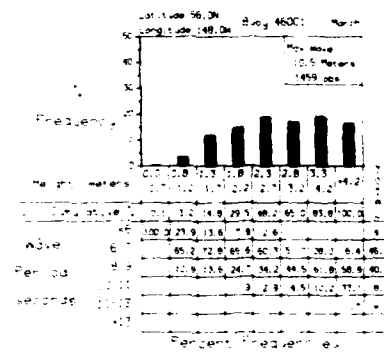
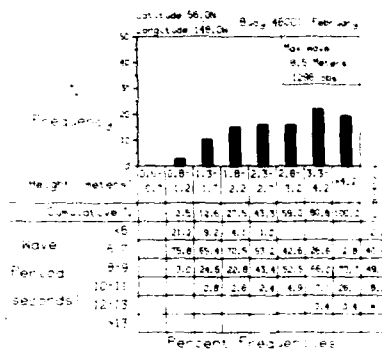
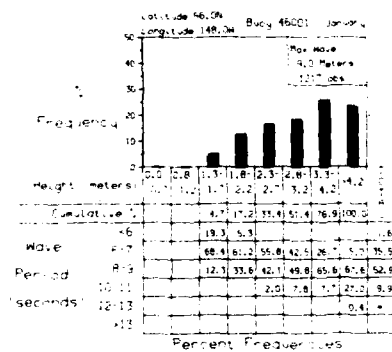
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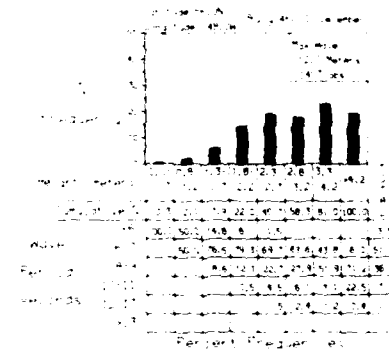
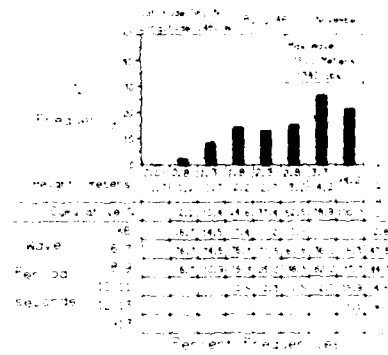
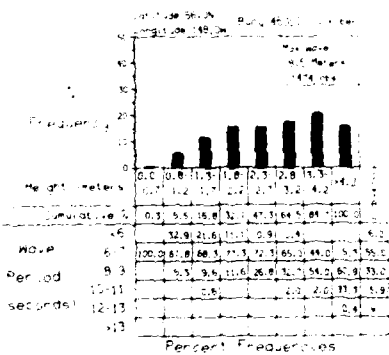
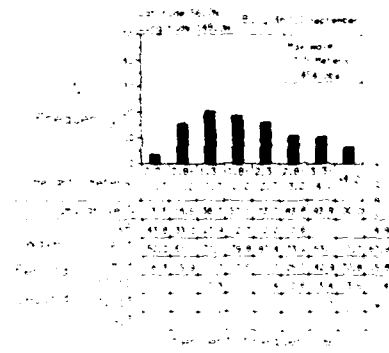
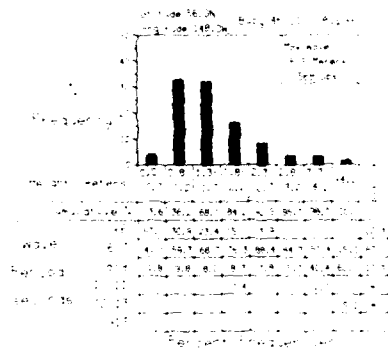
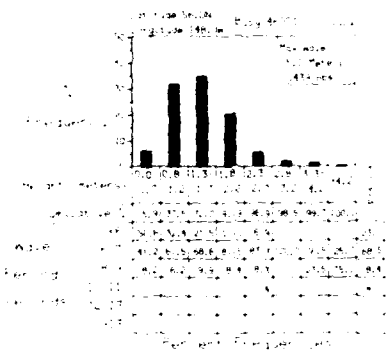
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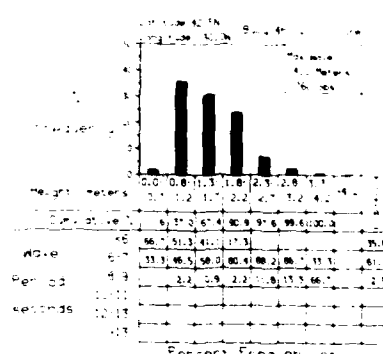
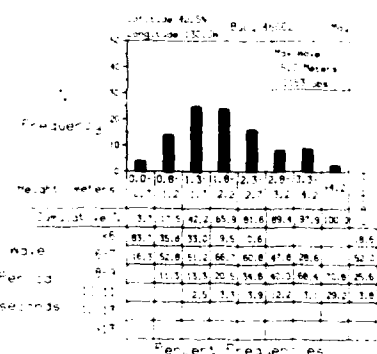
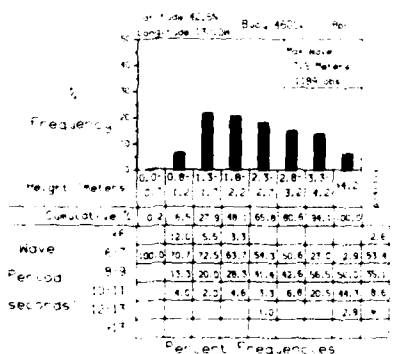
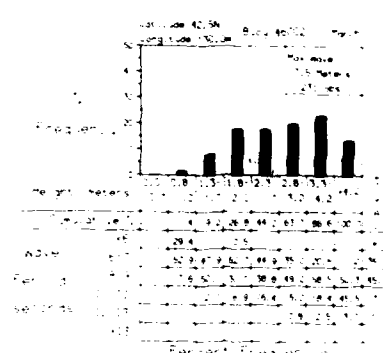
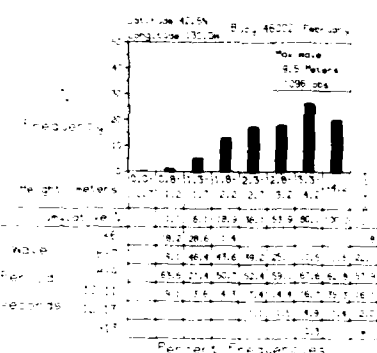
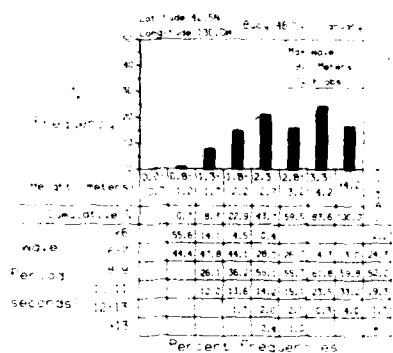
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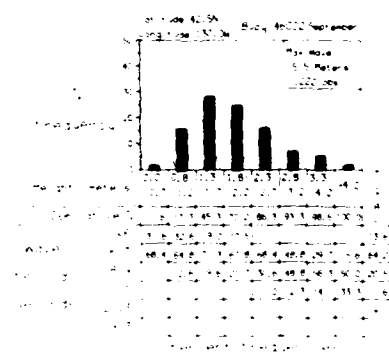


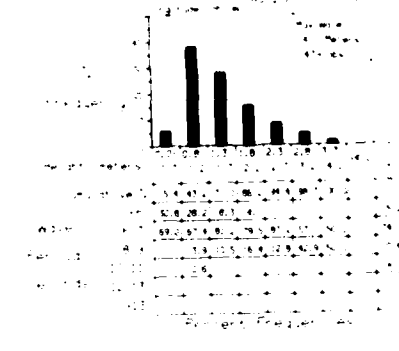
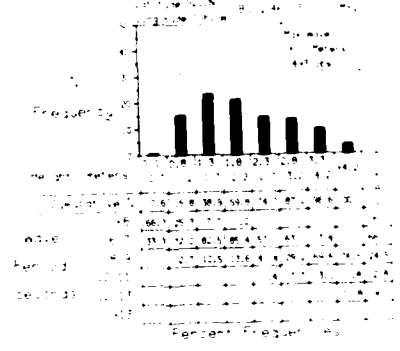
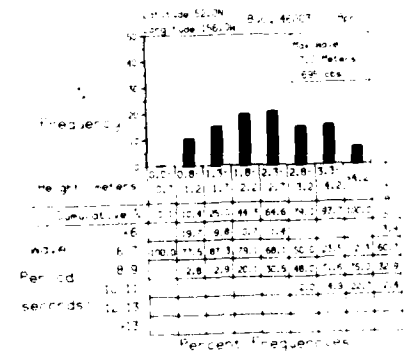
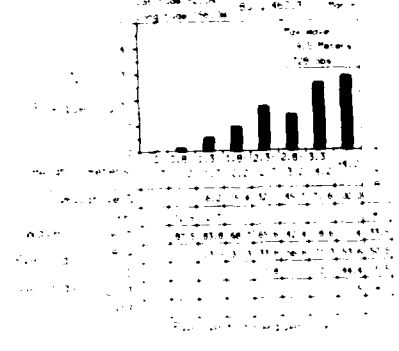
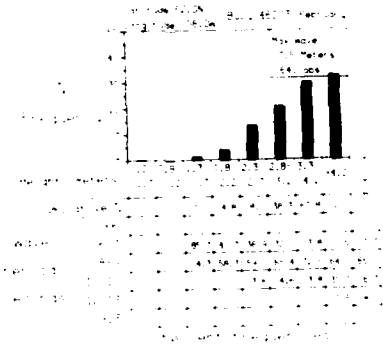
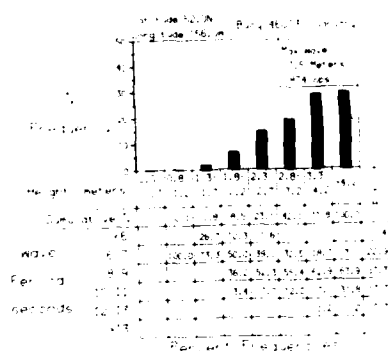


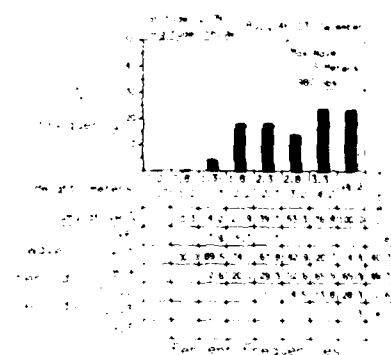
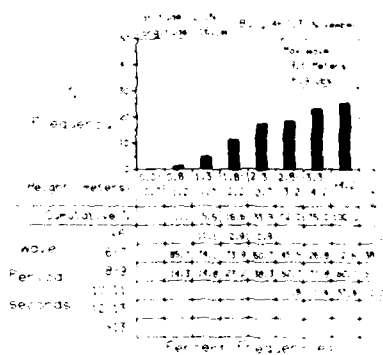
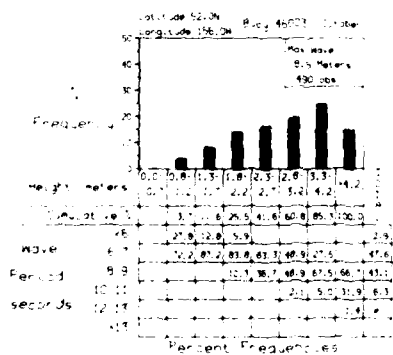
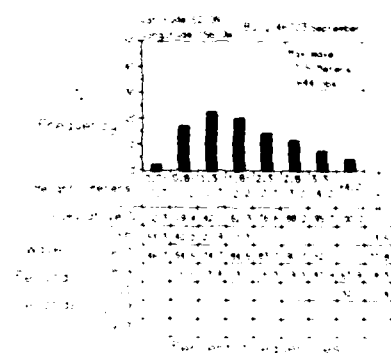
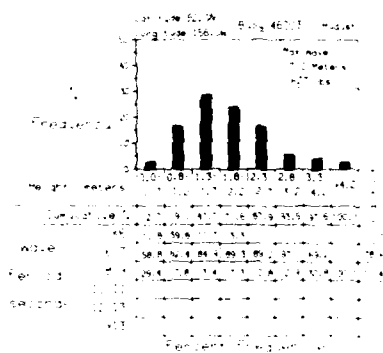
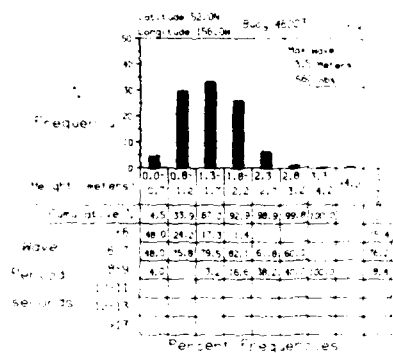


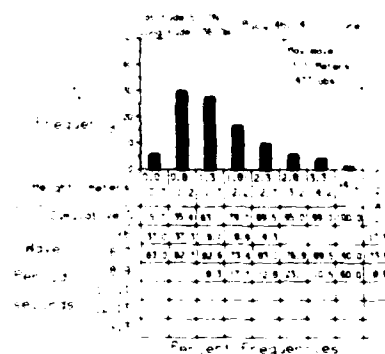
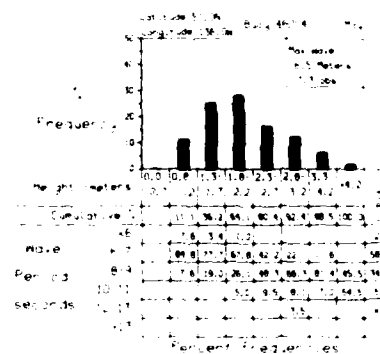
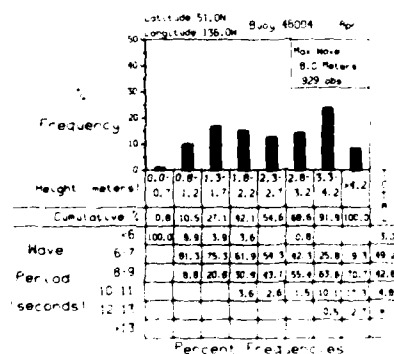
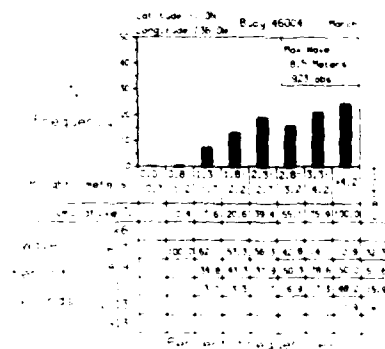
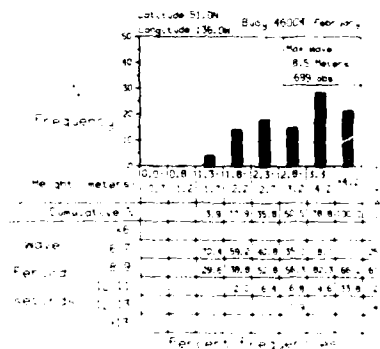
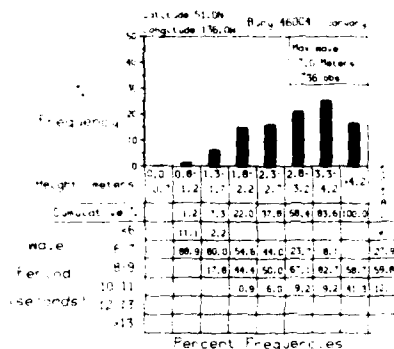


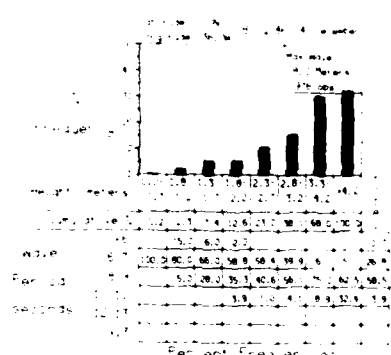
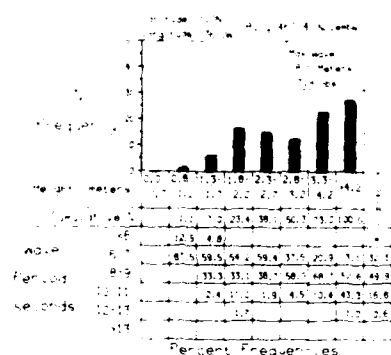
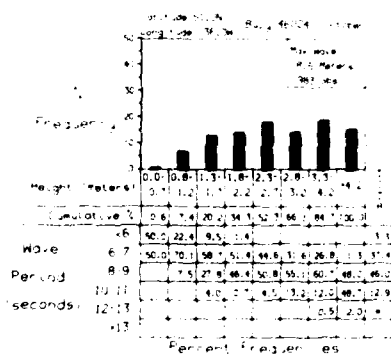
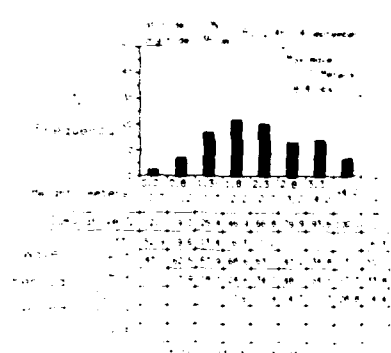
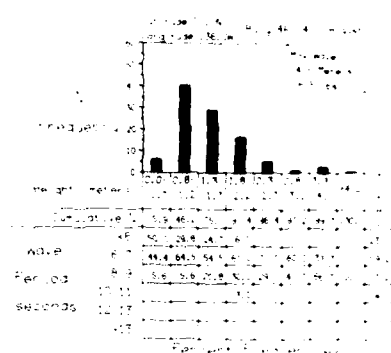
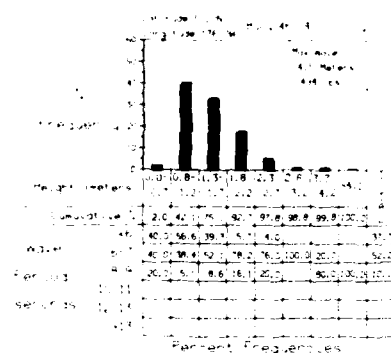


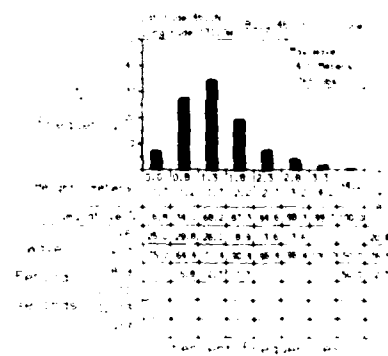


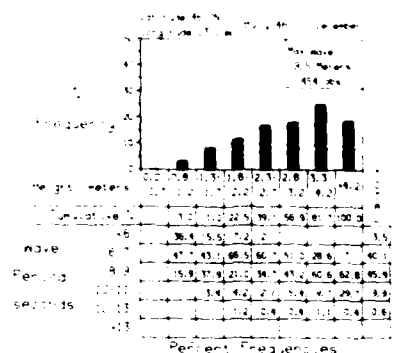
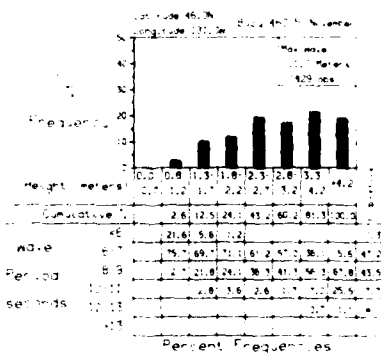
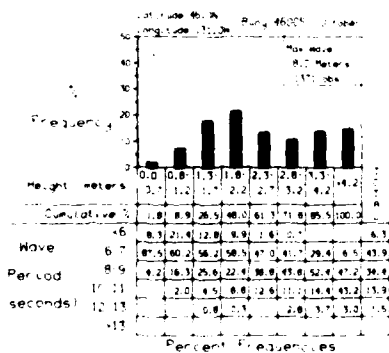
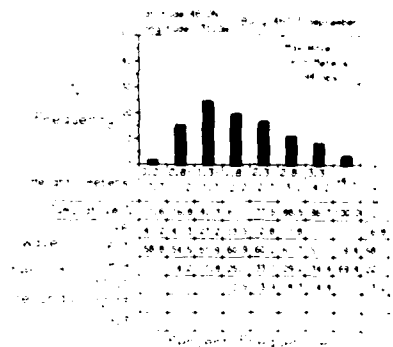
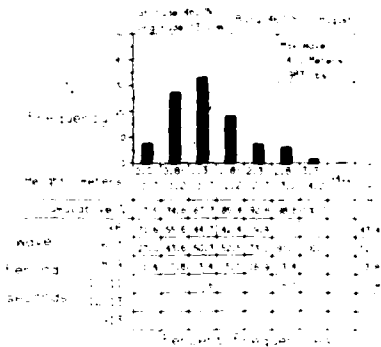
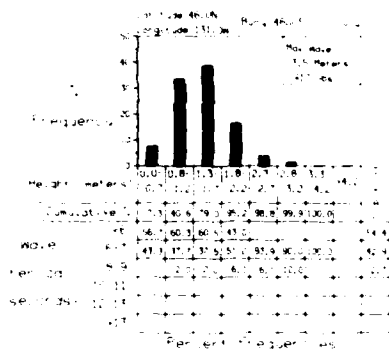


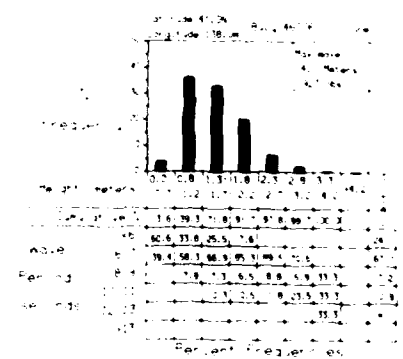
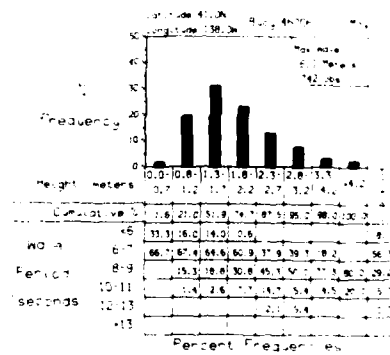
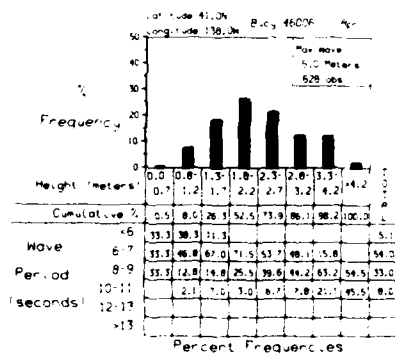
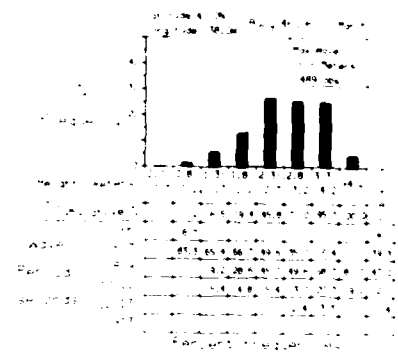
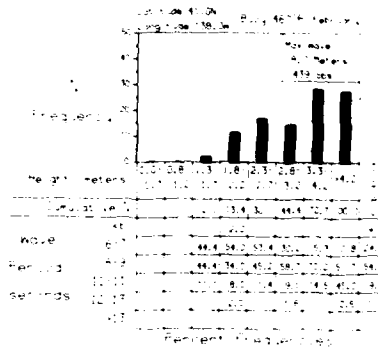
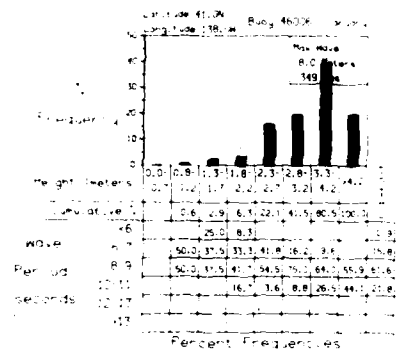


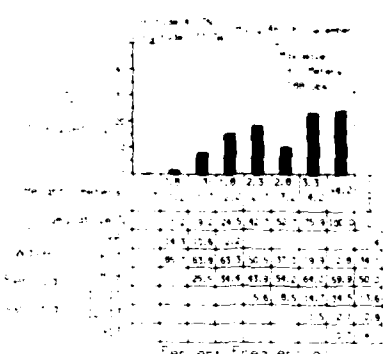
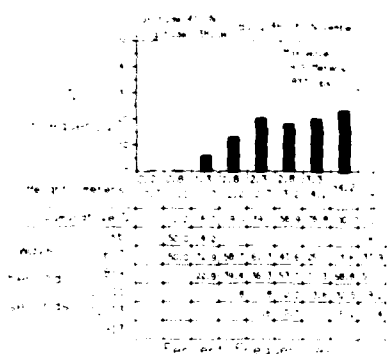
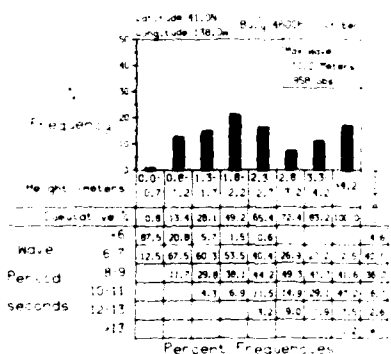
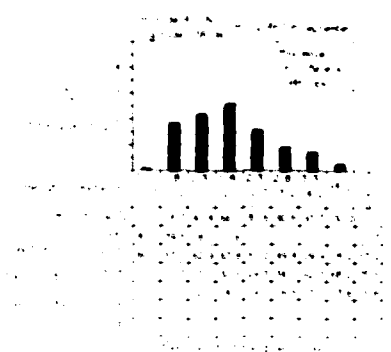
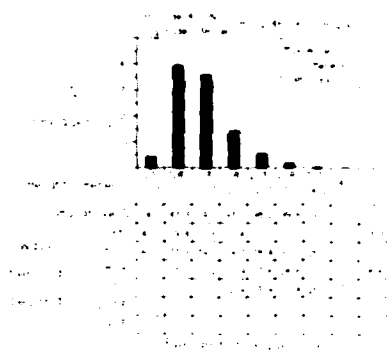
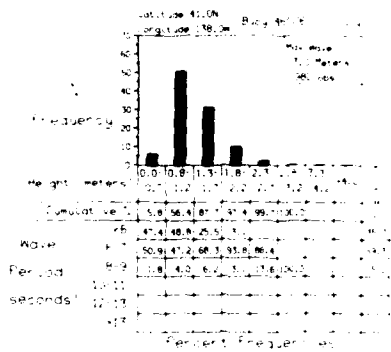


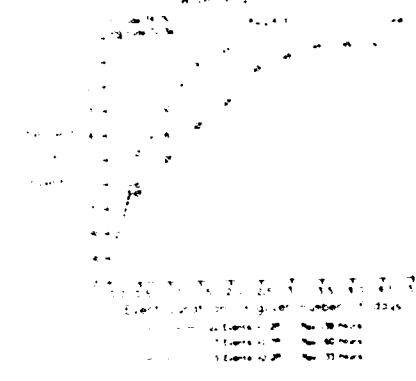
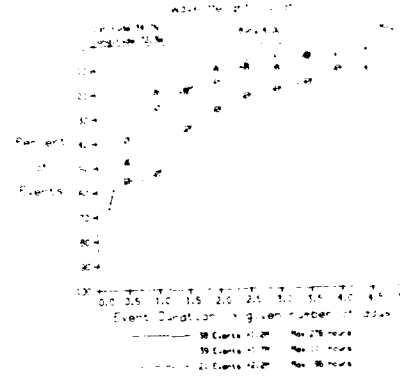
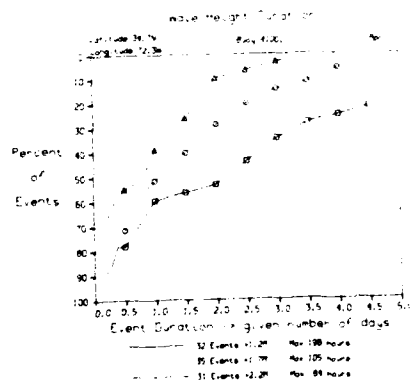
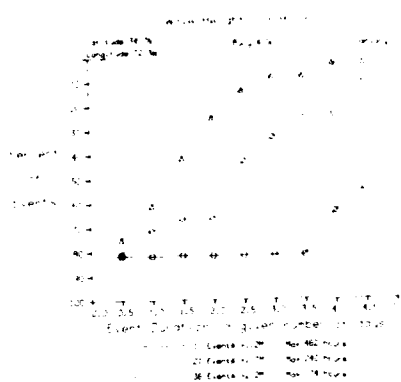


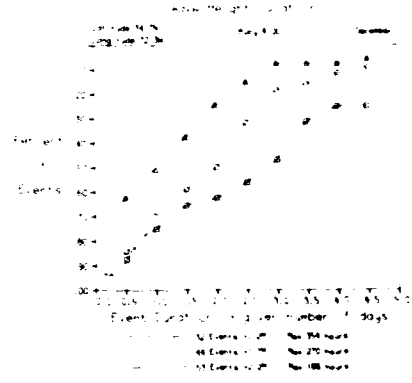
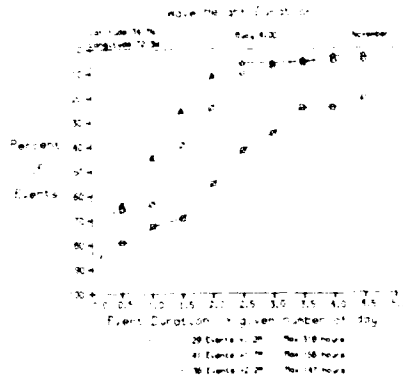
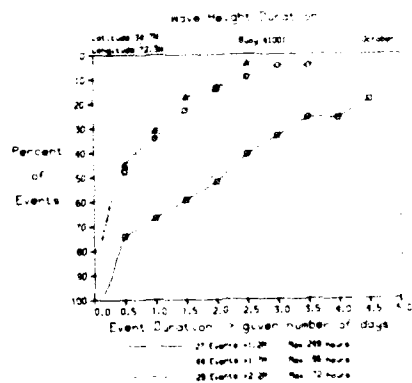
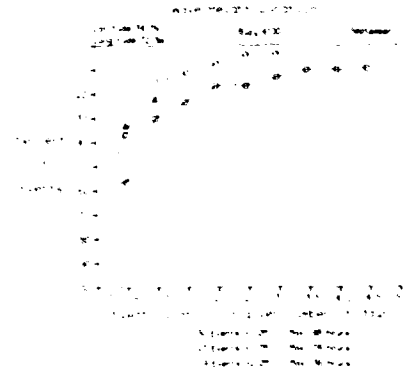
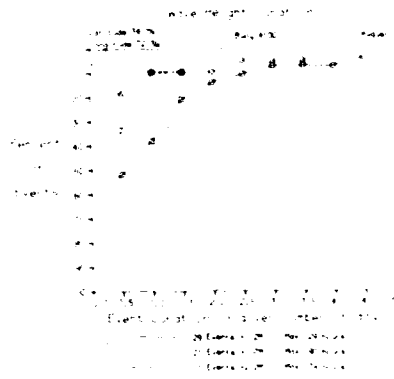
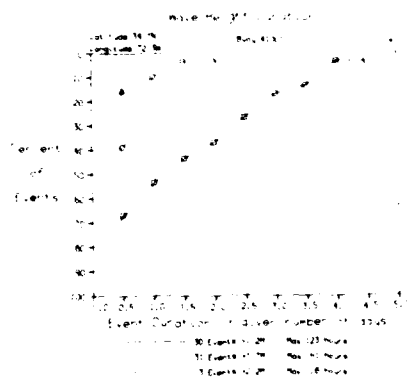


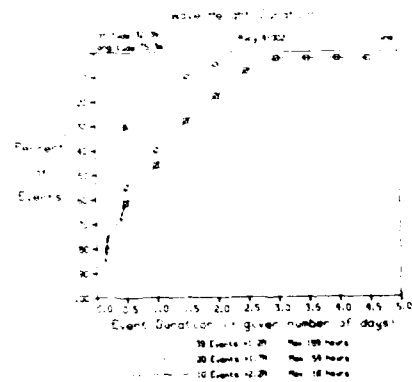


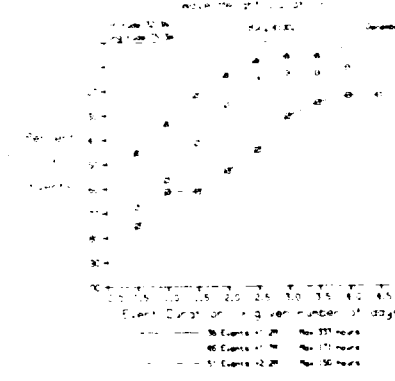
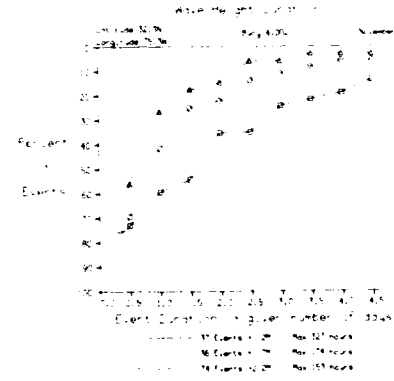
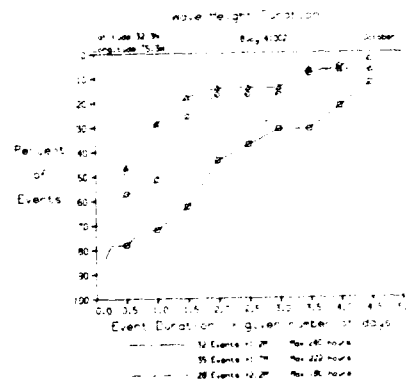
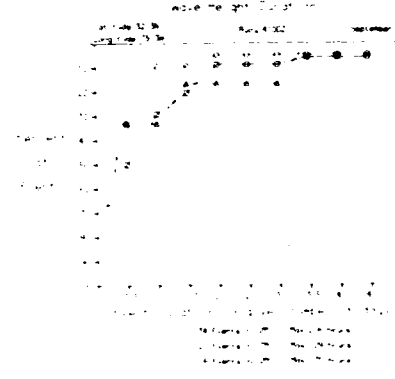
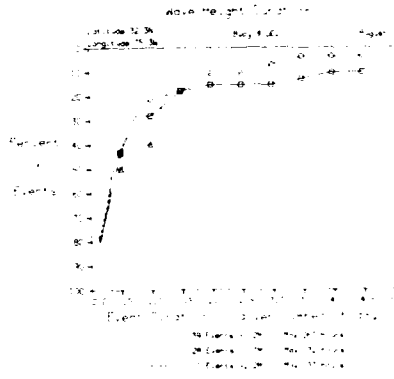
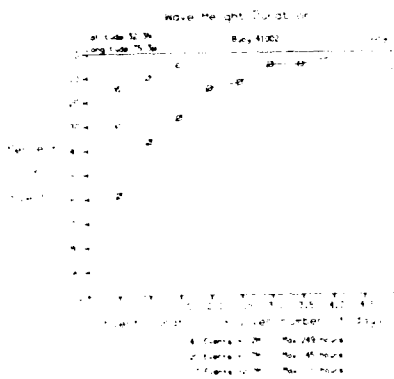


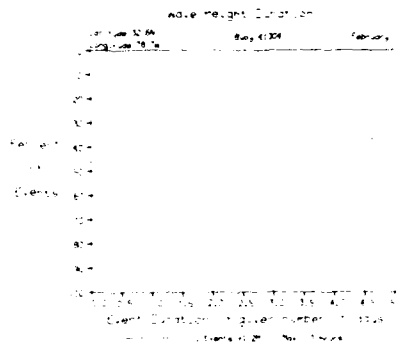
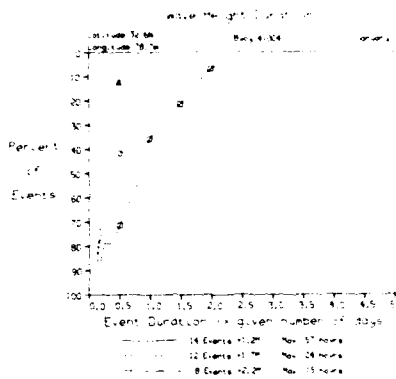










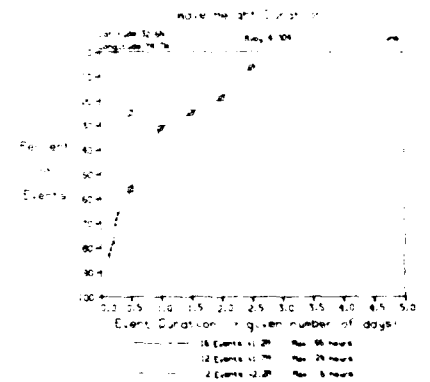
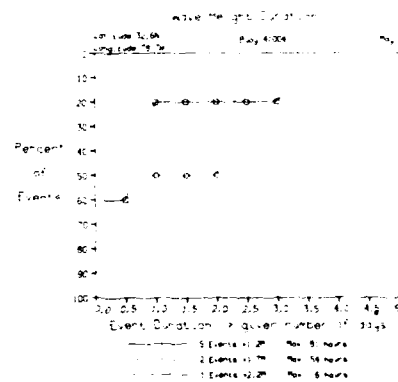


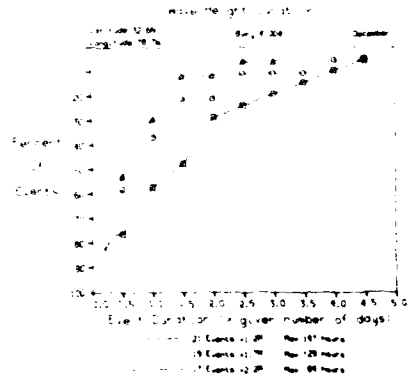
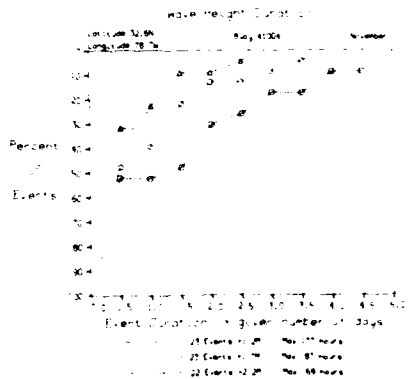
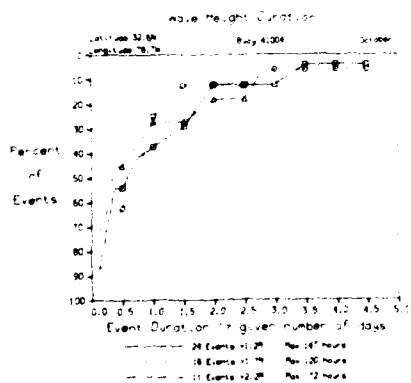
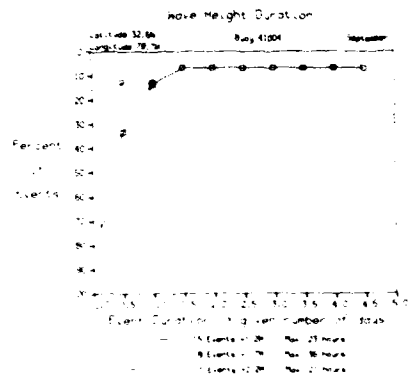
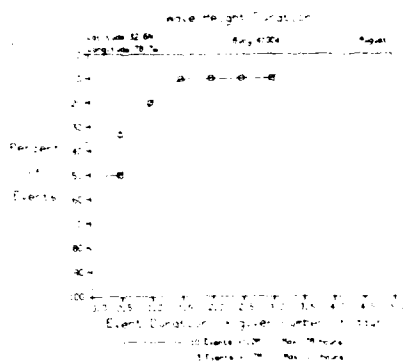
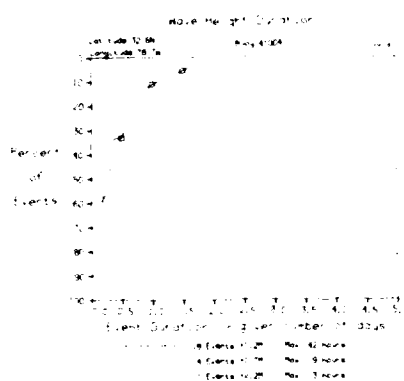
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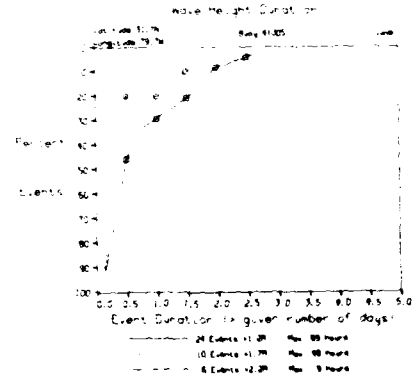
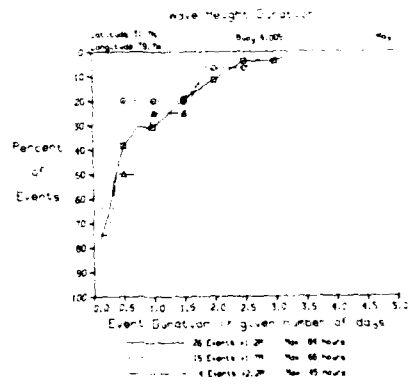
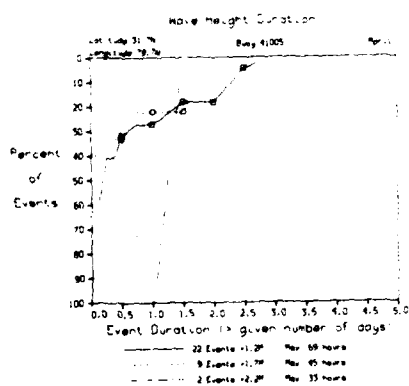
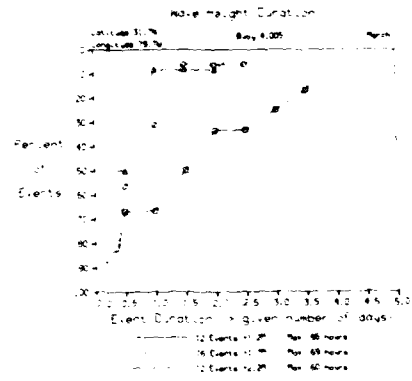
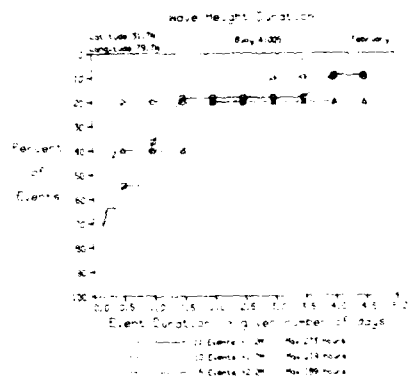
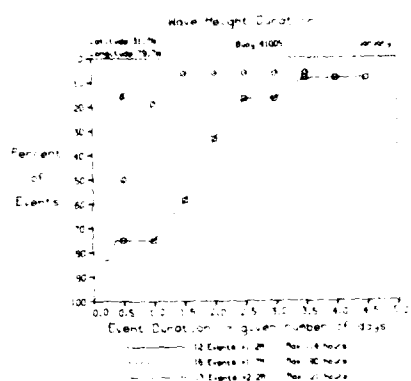
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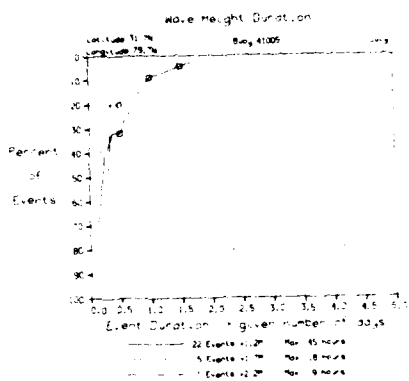
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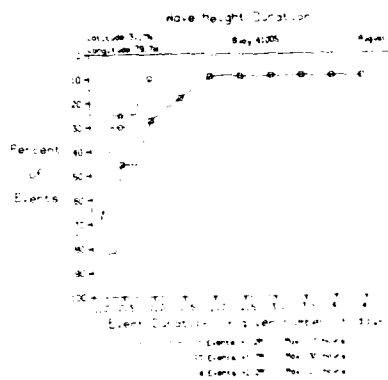




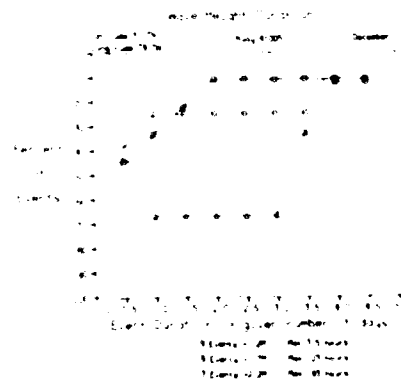
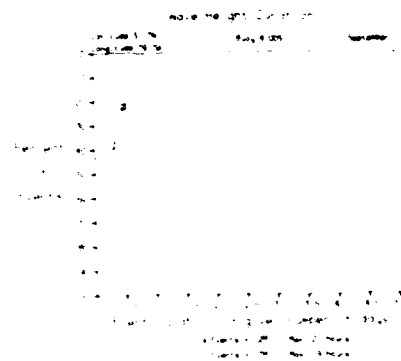


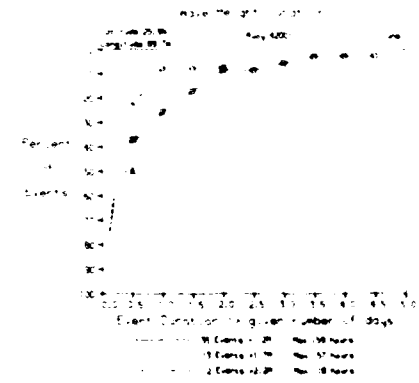
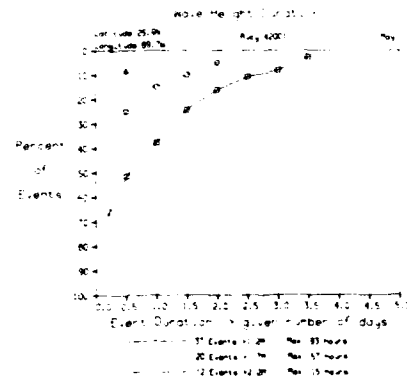
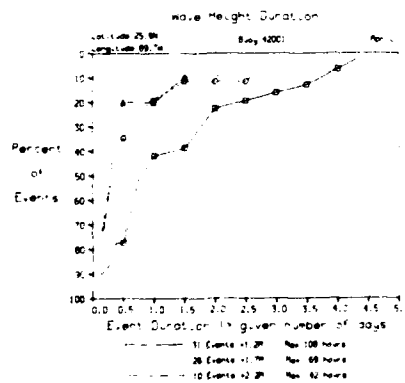
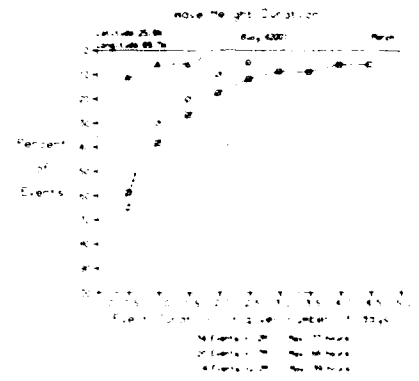
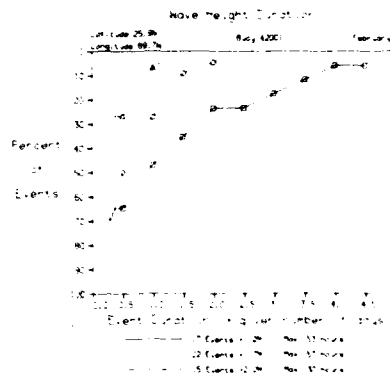
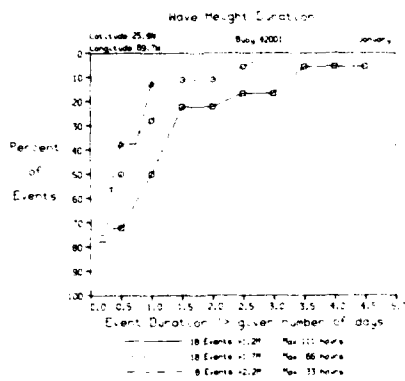


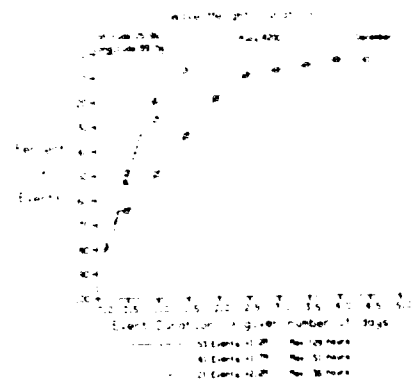
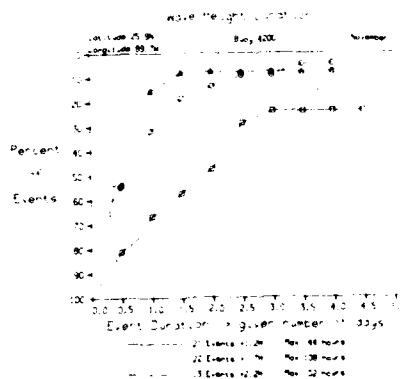
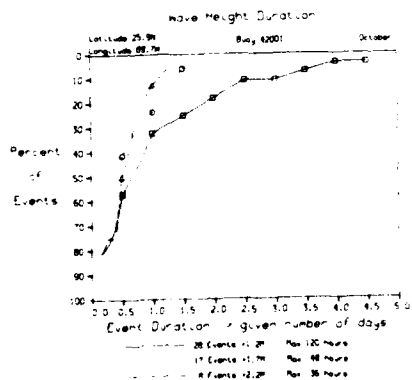
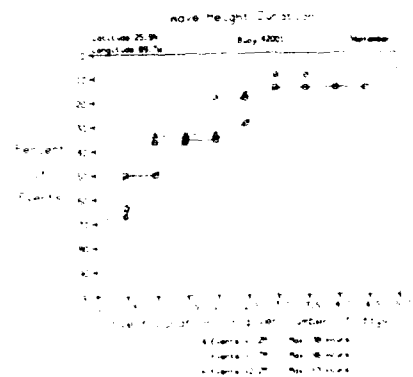
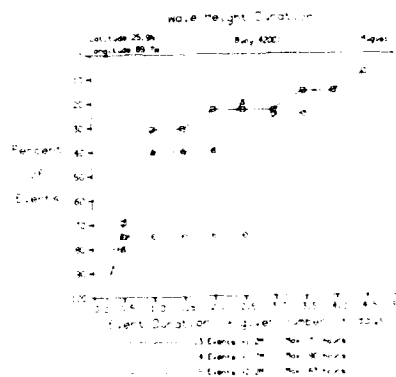
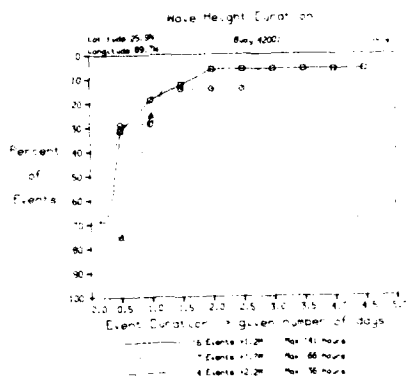
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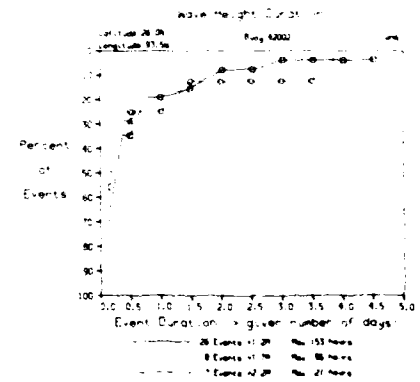
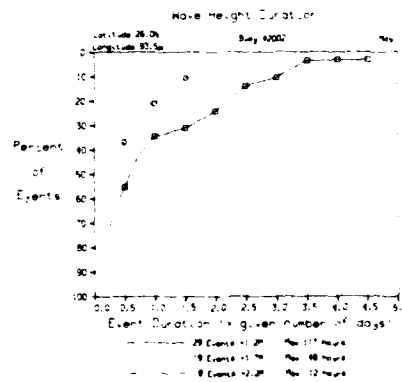
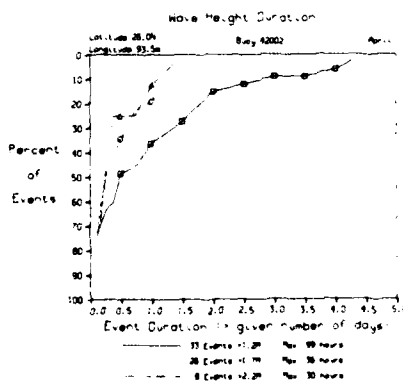
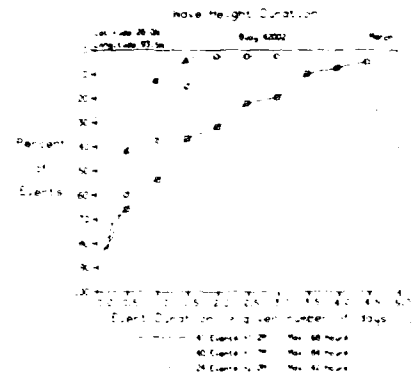
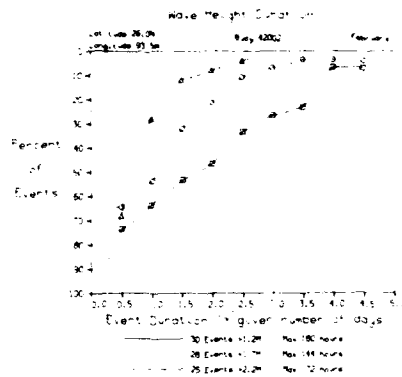
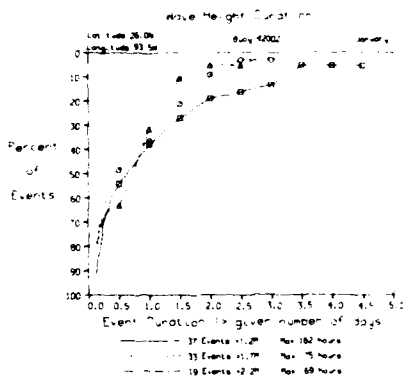


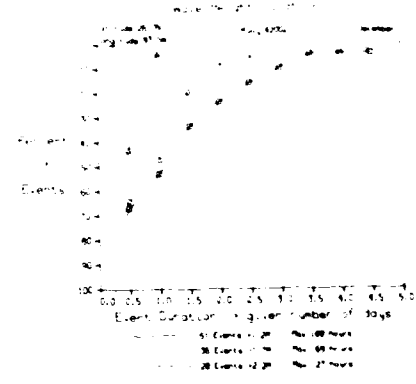
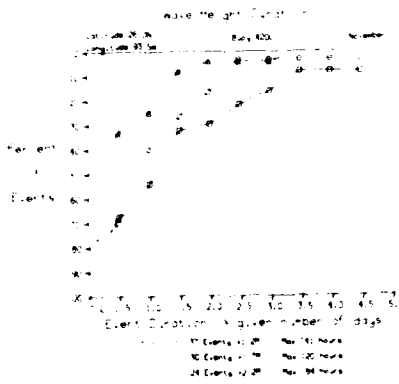
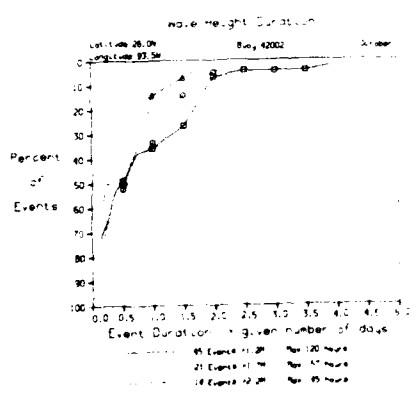
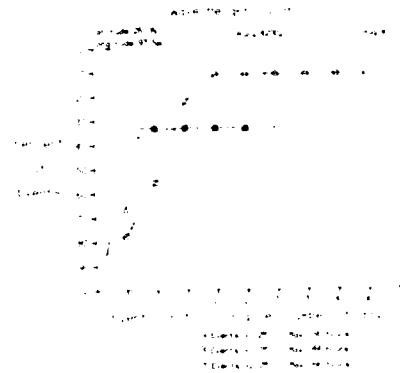
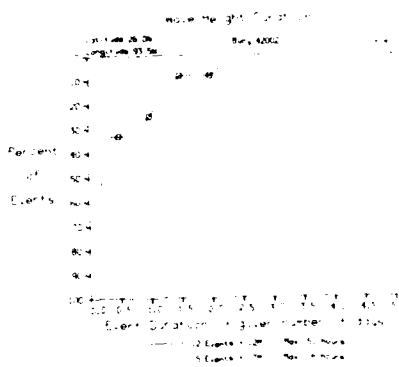
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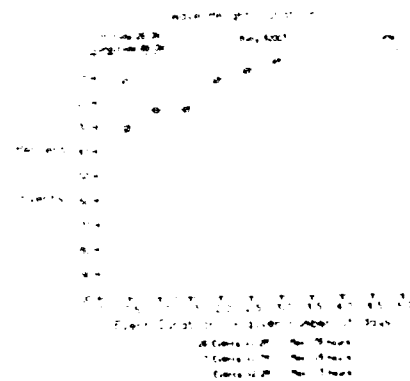
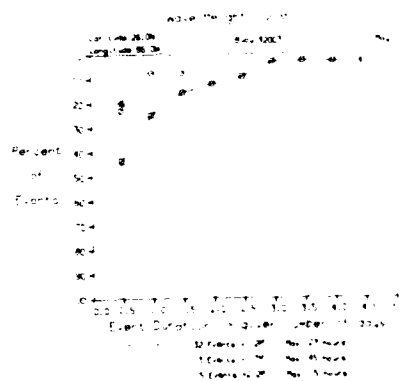
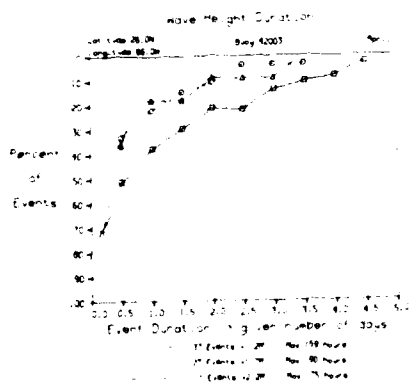
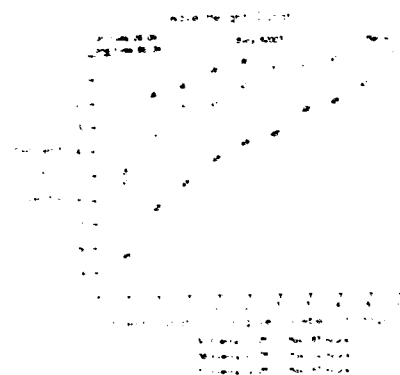
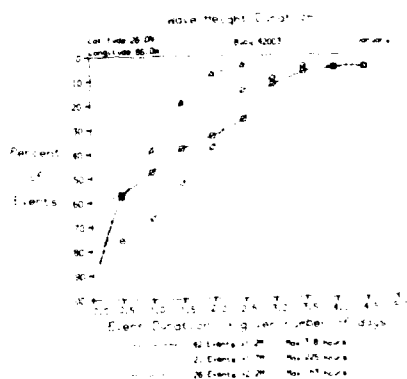


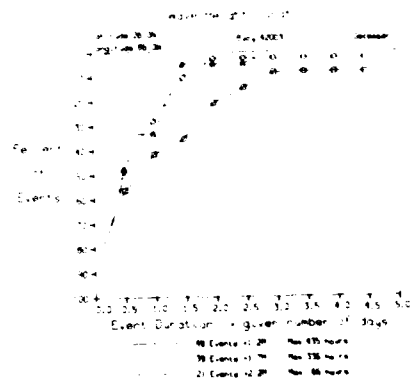
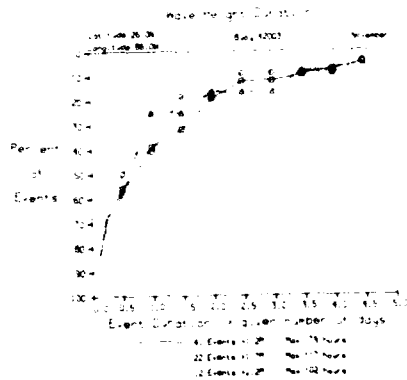
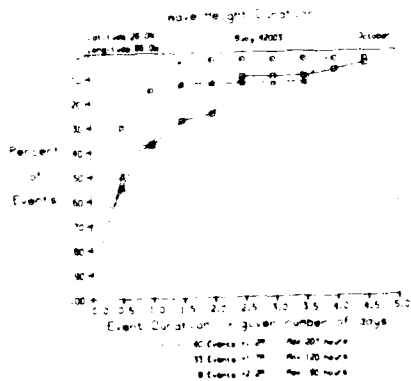
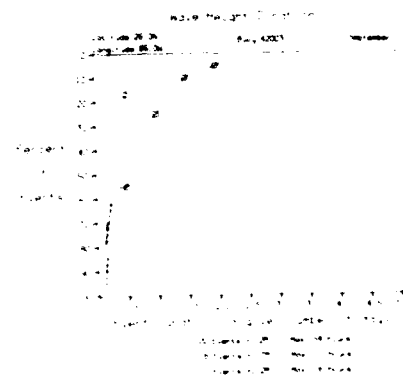
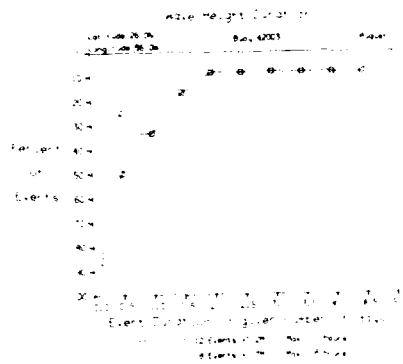
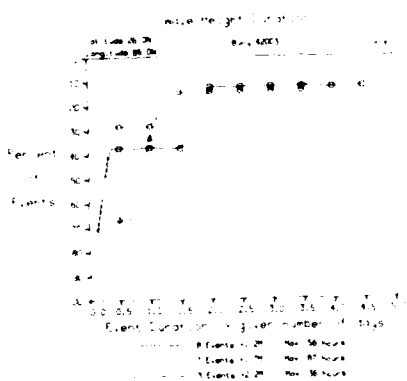


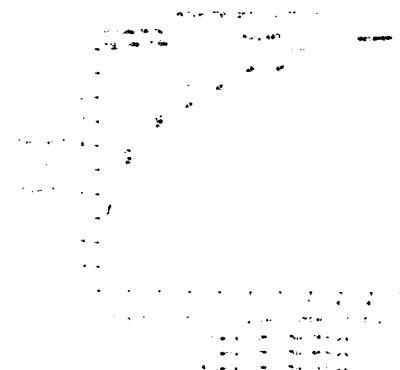


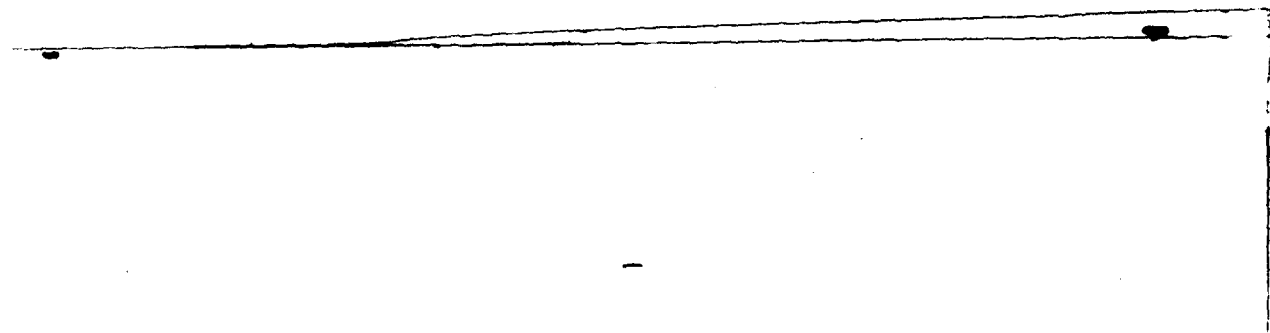












1. Distance between
2. Distance between
3. Distance between

1. Distance between
2. Distance between
3. Distance between



No Data Available for

July

No Data Available for

August

No Data Available for

September

No Data Available for

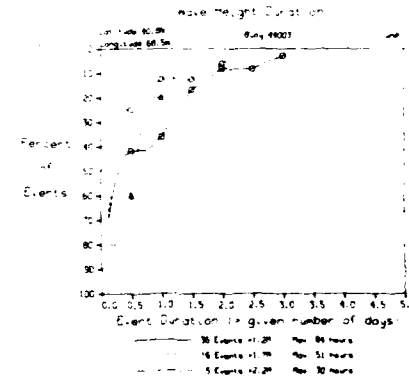
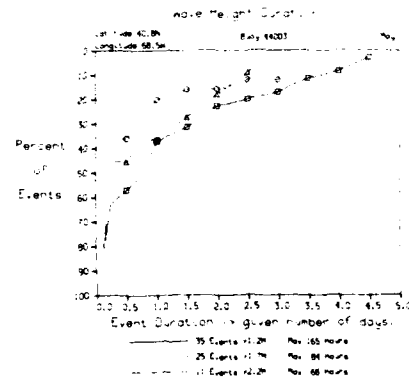
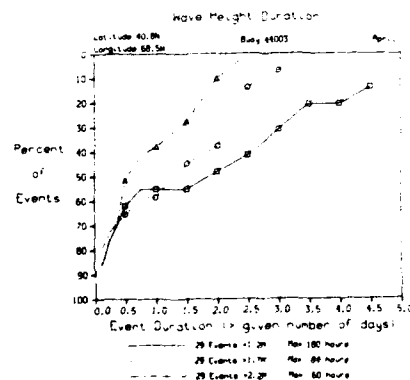
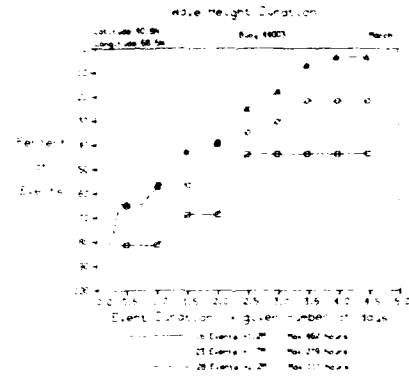
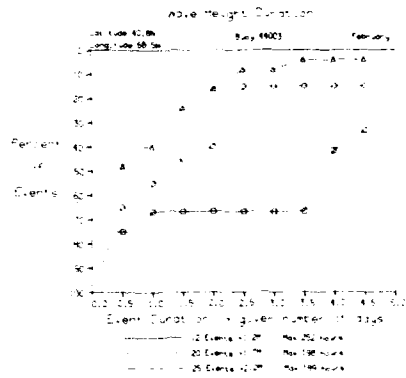
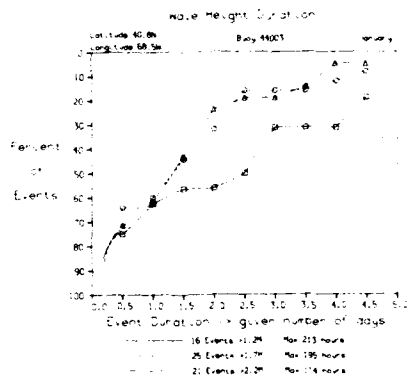
October

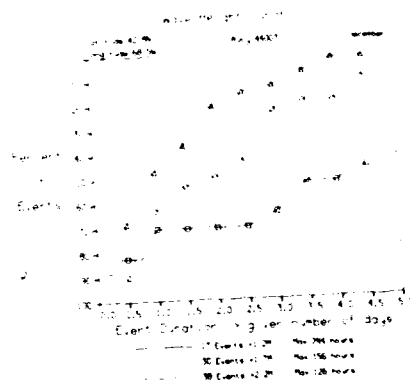
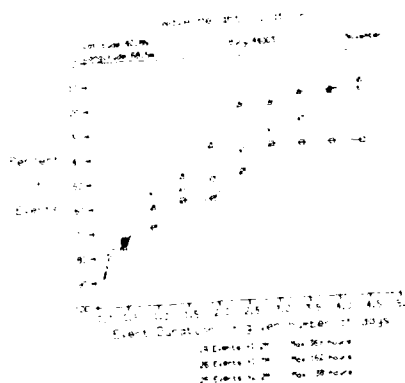
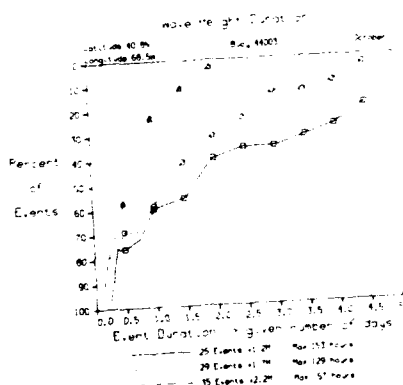
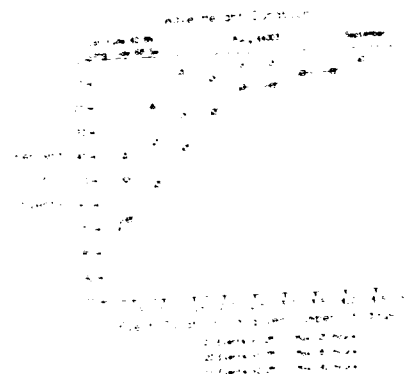
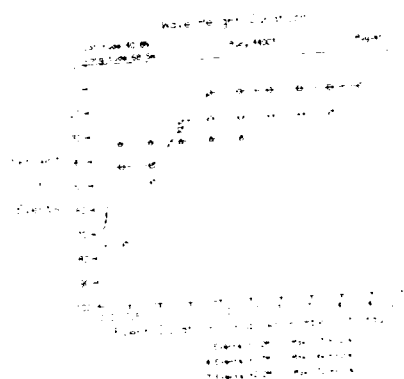
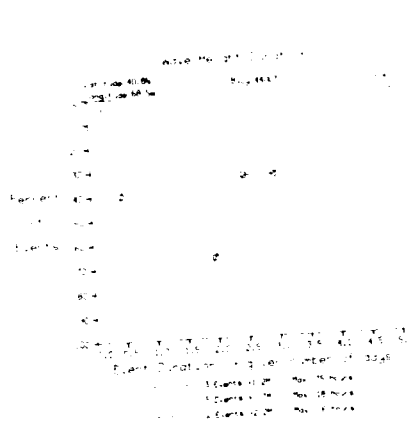
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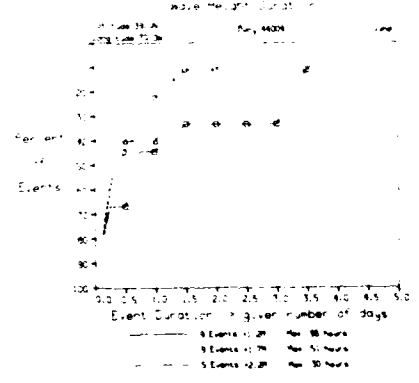
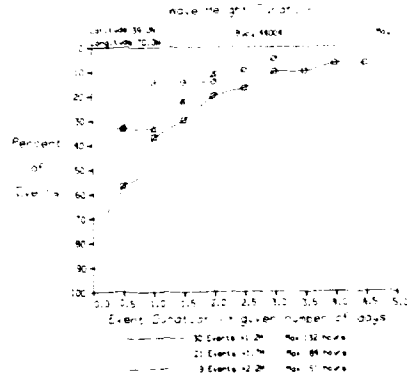
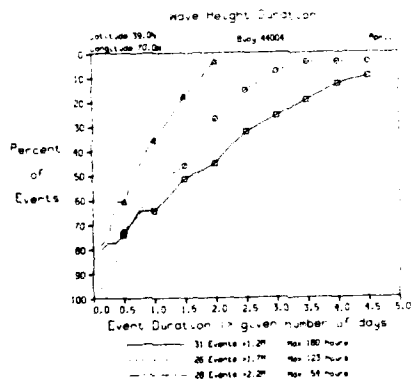
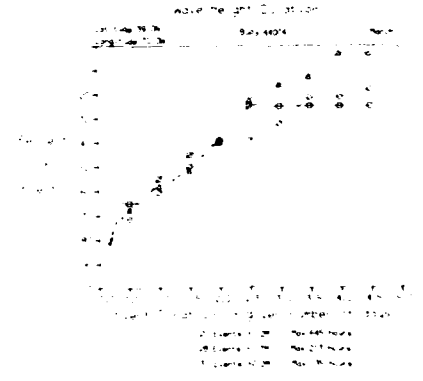
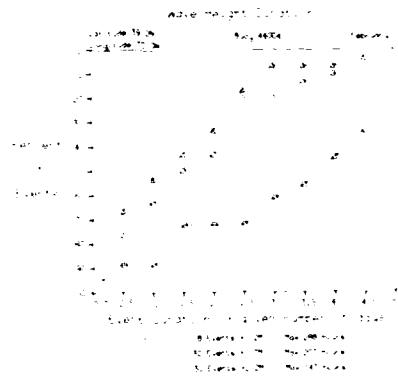
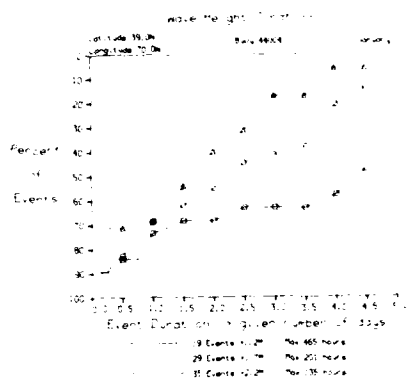
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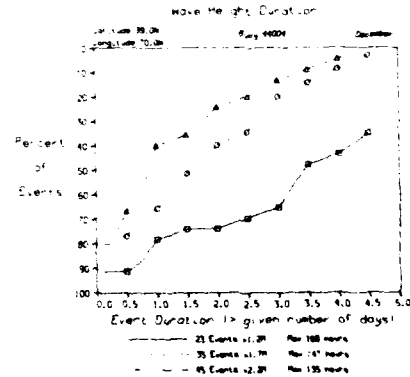
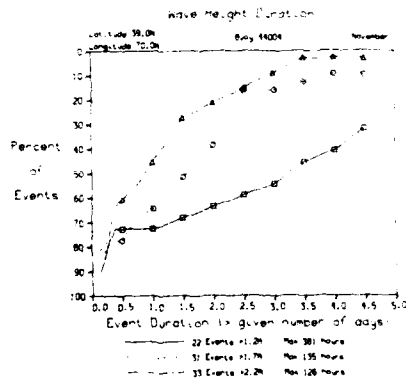
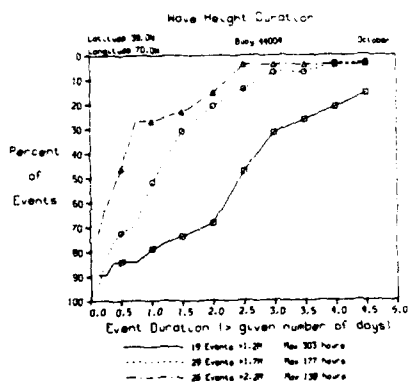
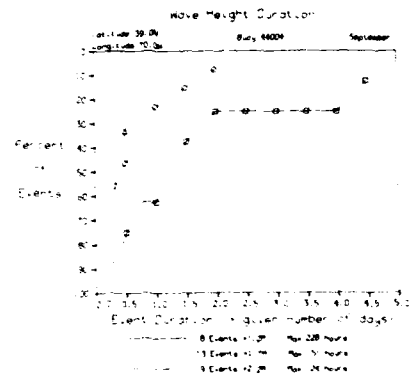
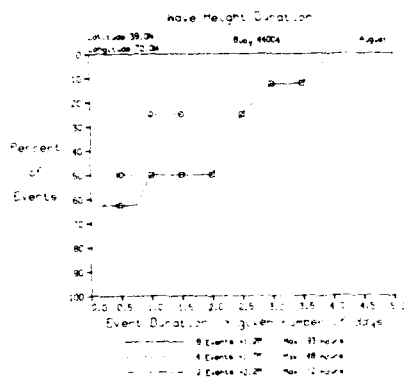


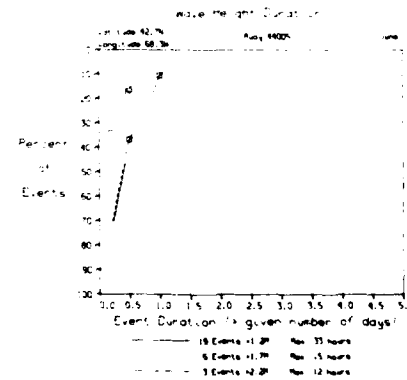
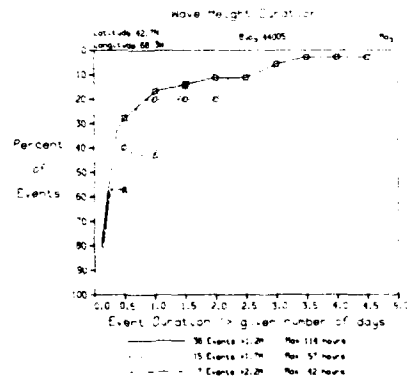
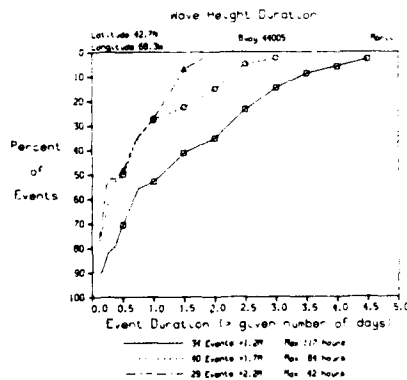
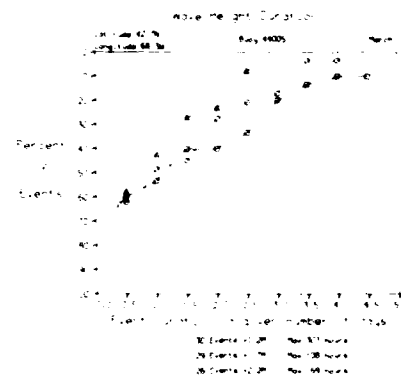
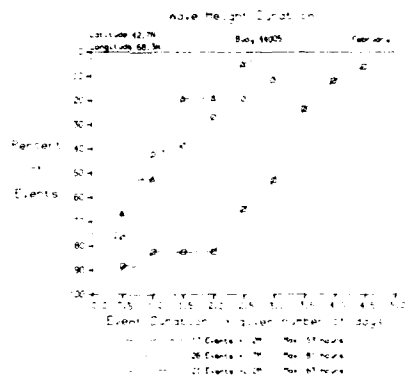
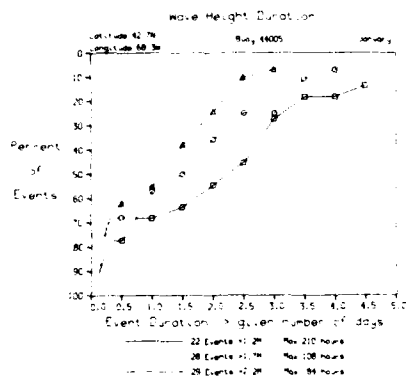


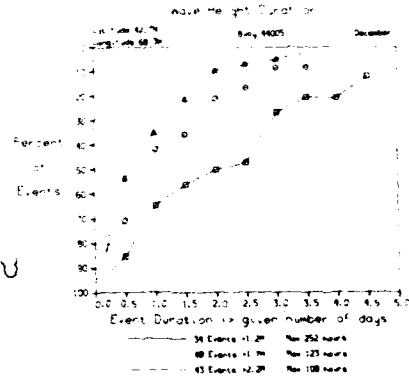
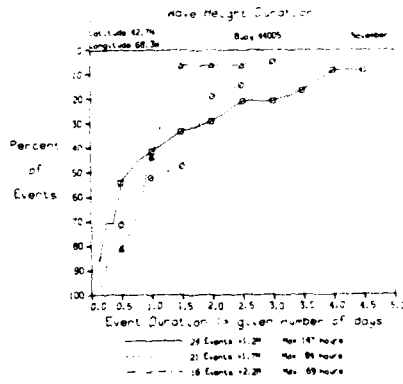
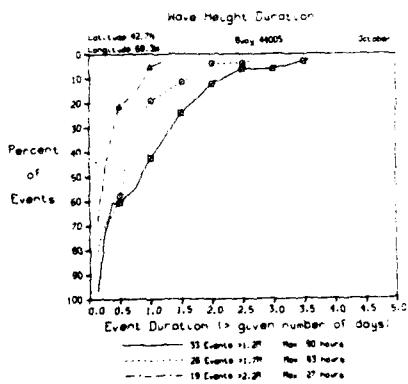
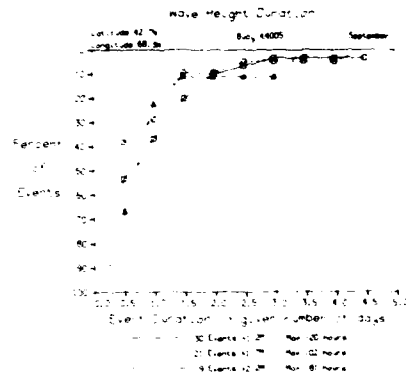
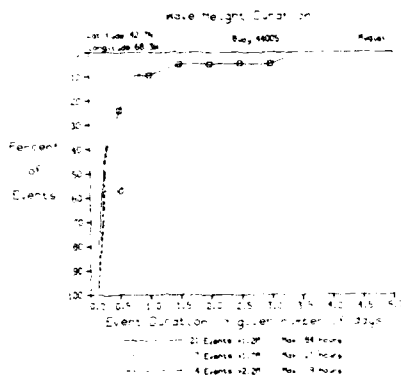
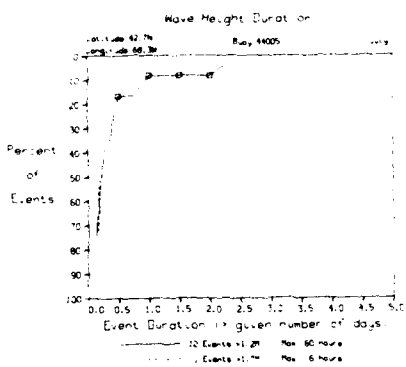


No Data Available for

July







No Data Available For

March

No Data Available For

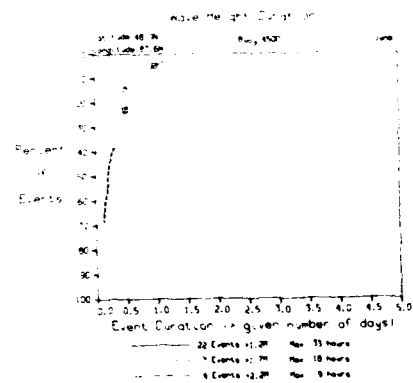
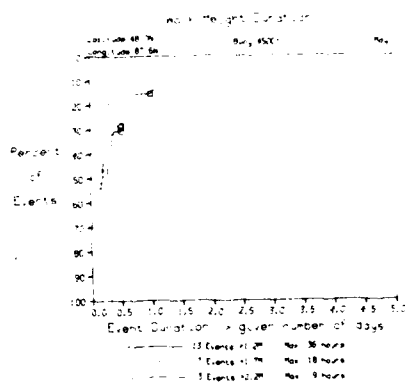
March

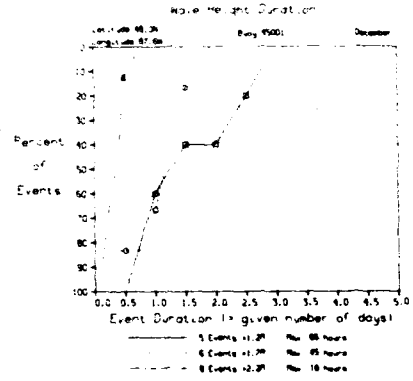
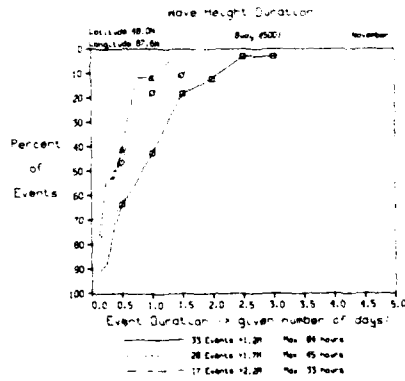
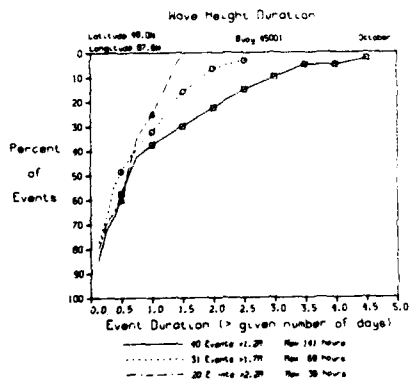
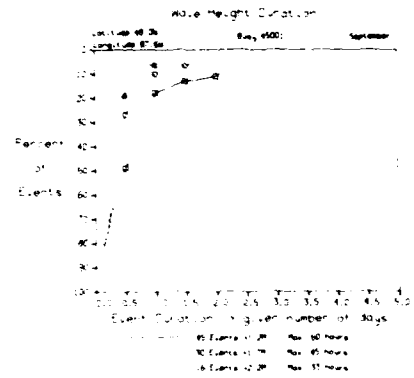
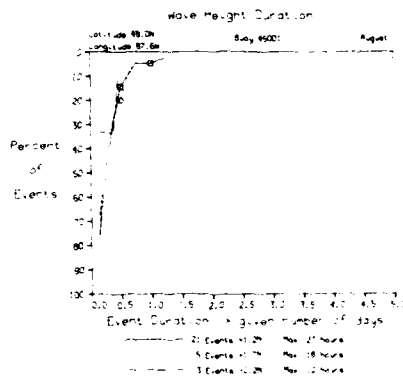
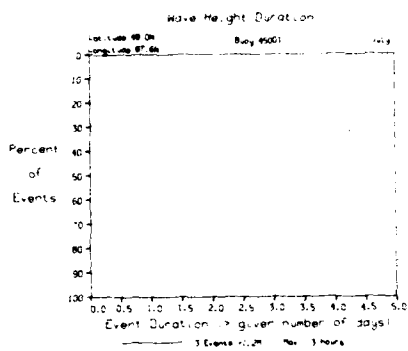
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March





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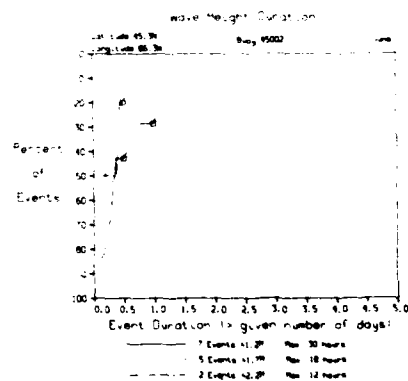
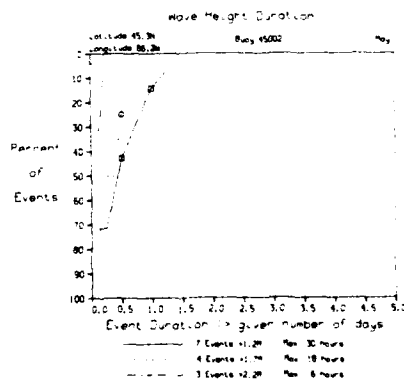
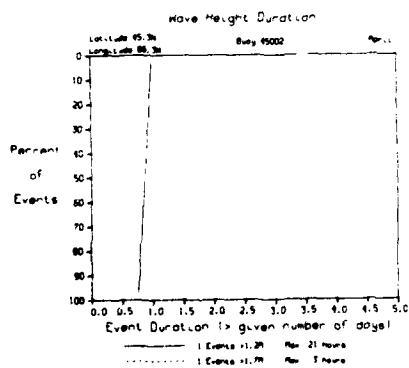
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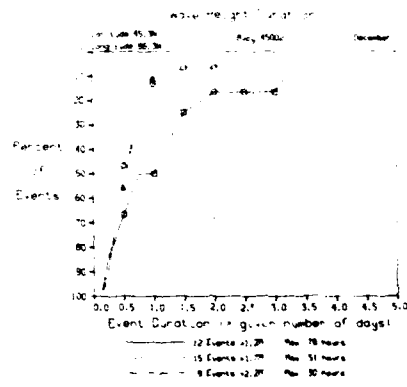
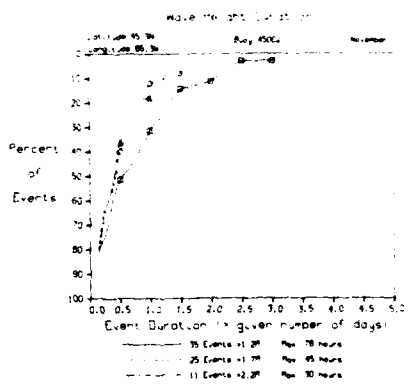
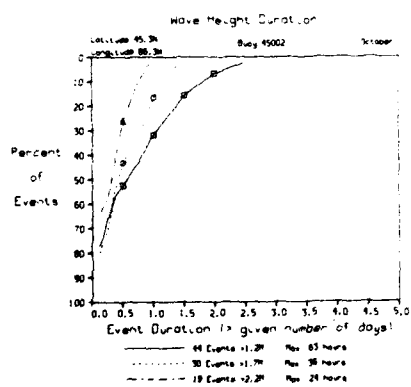
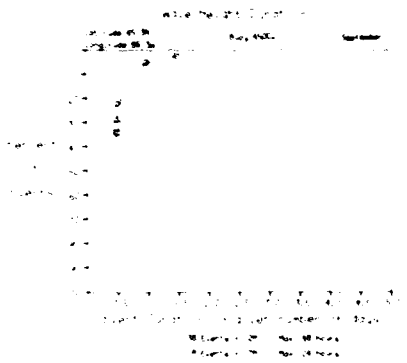
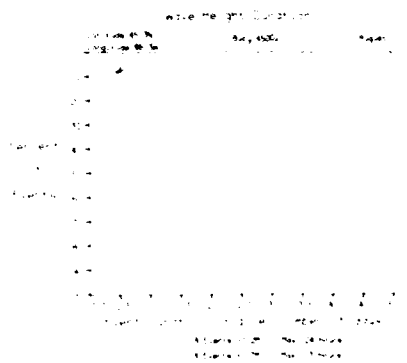
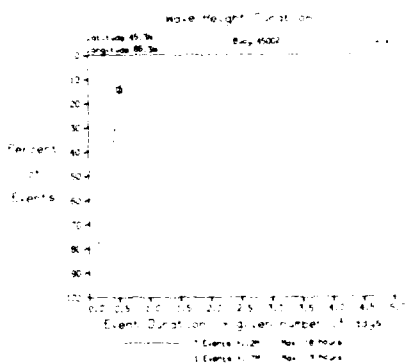
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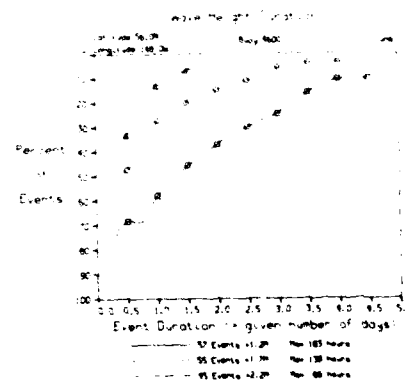
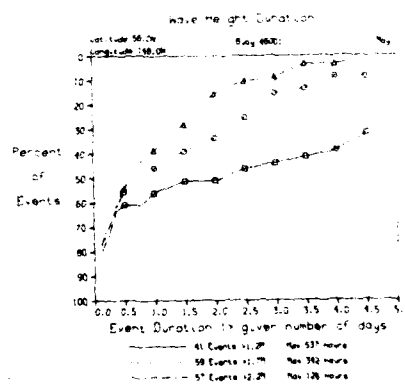
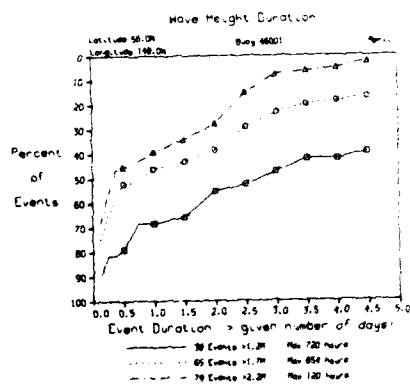
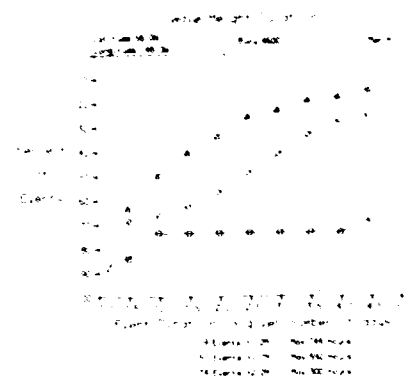
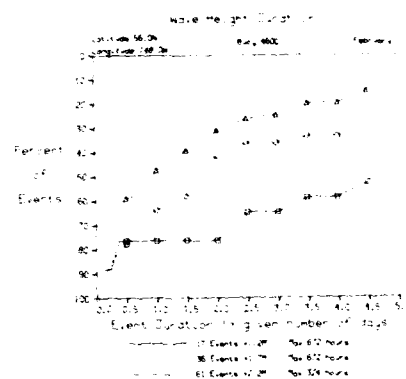
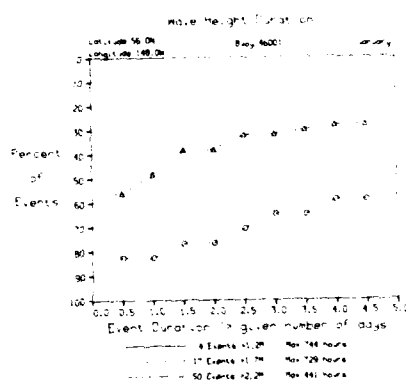
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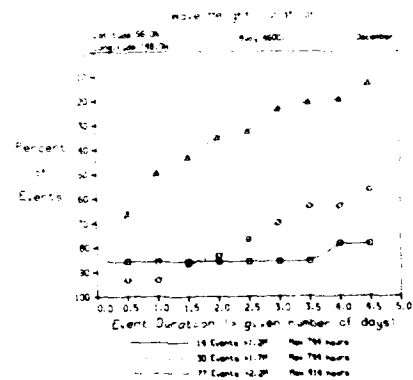
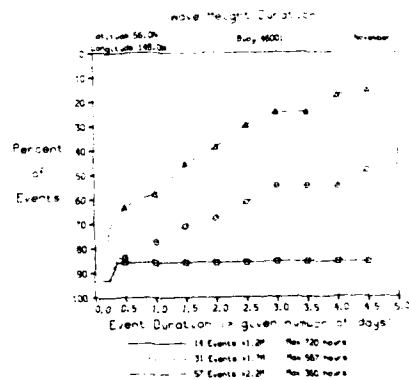
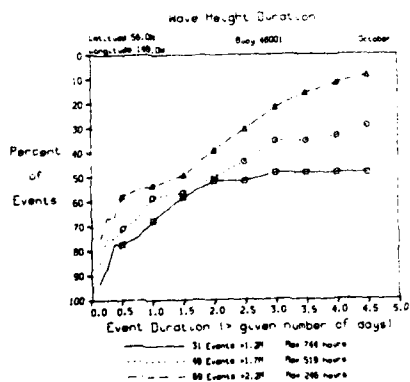
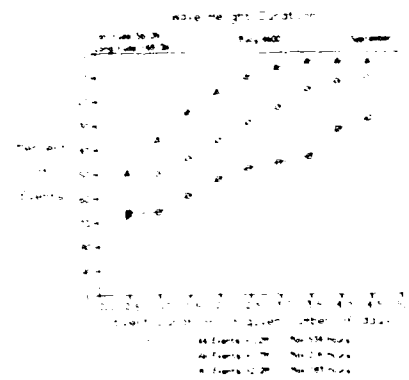
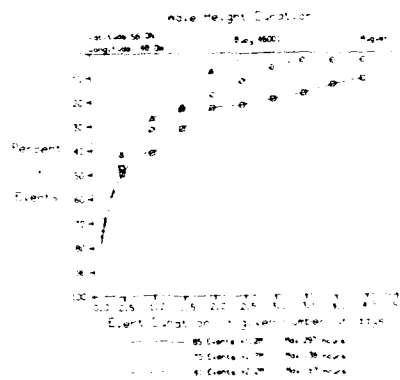
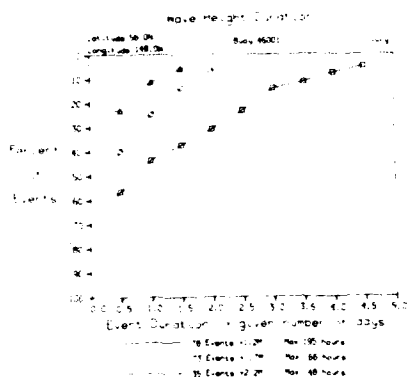
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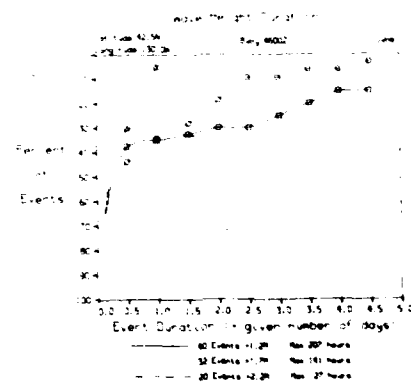
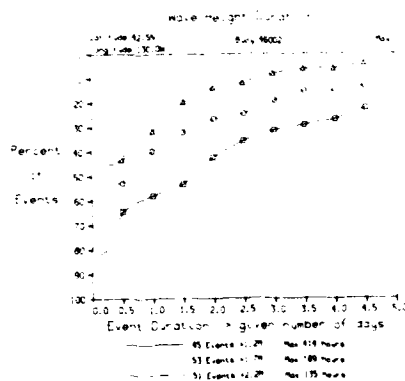
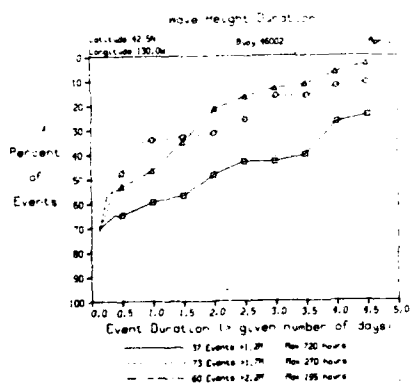
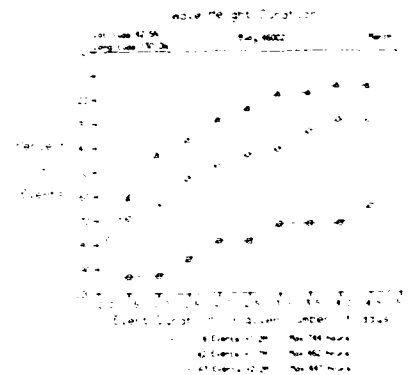
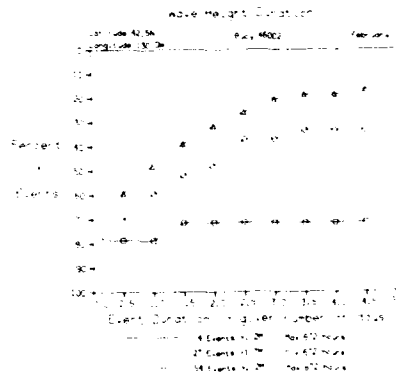
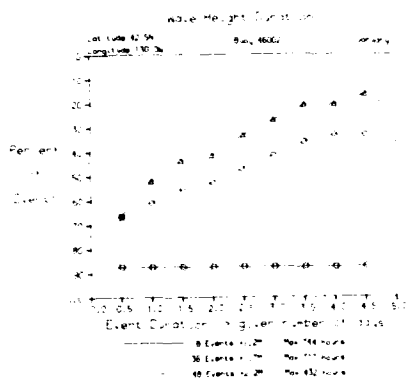
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REF A130 647 WIND AND WAVE SUMMARIES FOR SELECTED US COAST GUARD
OPERATING AREAS (U) NATIONAL CLIMATIC DATA CENTER
ASHEVILLE NC D PASKAUSKY ET AL. APR 83 USCG-D-11-83
UNCLASSIFIED MPR-270099-2-0612R F/G 5/1

WIND AND WAVE SUMMARIES FOR SELECTED US COAST GUARD
OPERATING AREAS(U) NATIONAL CLIMATIC DATA CENTER
ASHEVILLE NC D PASKAUSKY ET AL. APR 83 USCG-D-11-83
MIPR-270099-2-0612R F/G 5/1

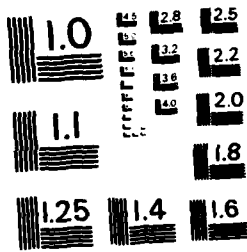
2/5

UNCLASSIFIED

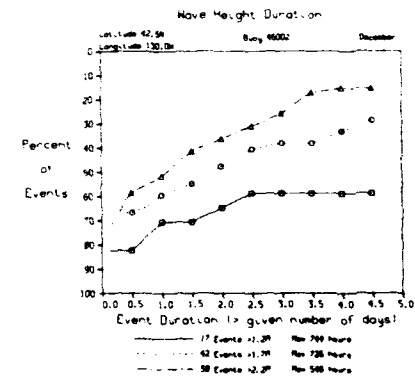
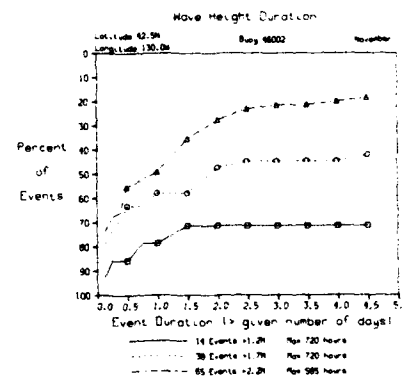
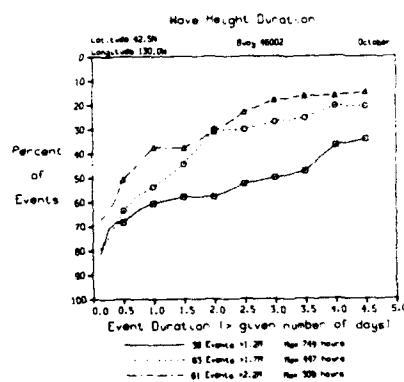
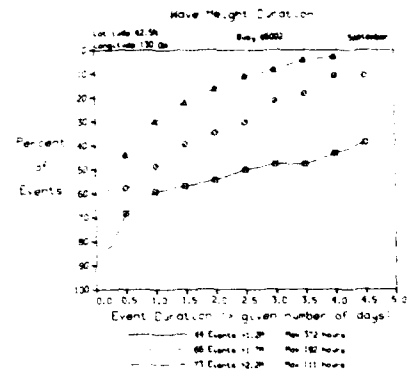
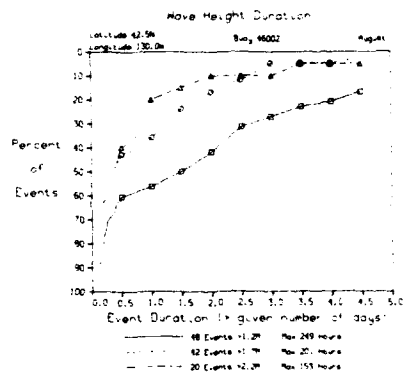
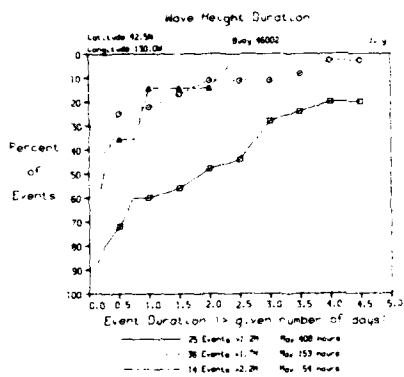
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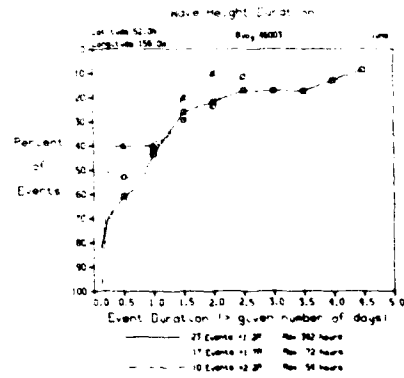
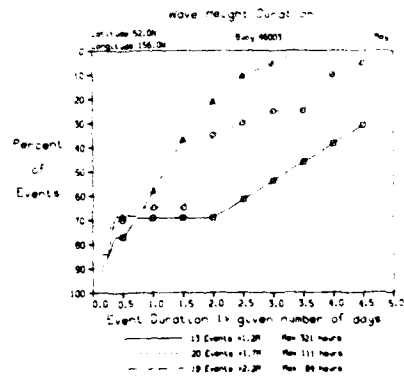
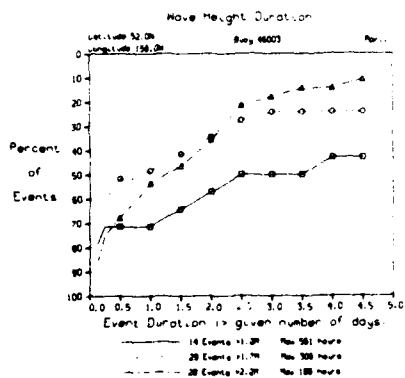
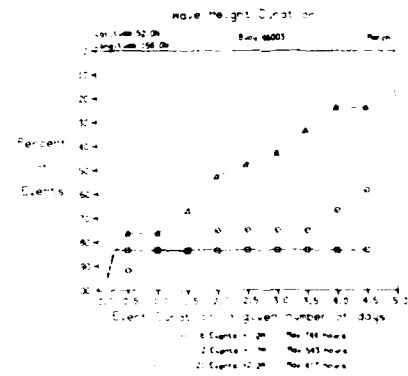
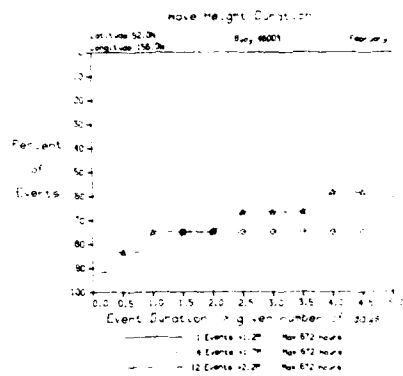
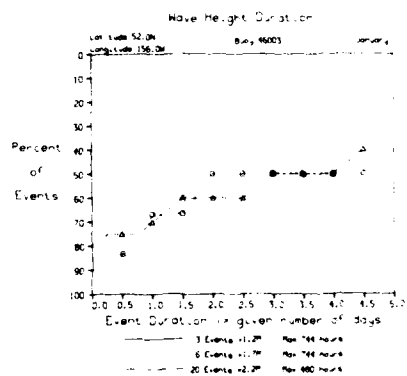
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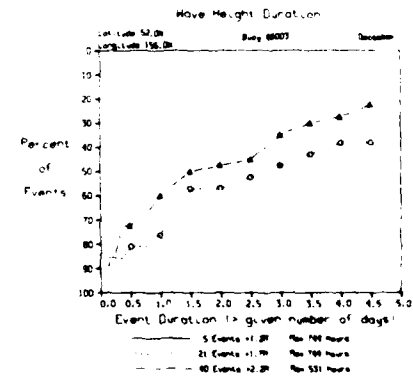
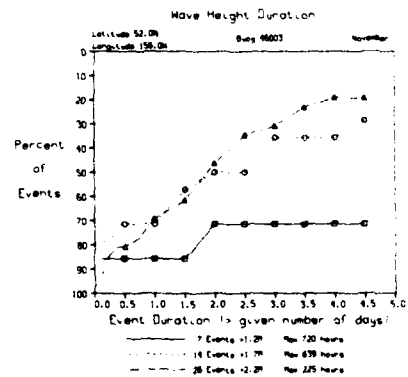
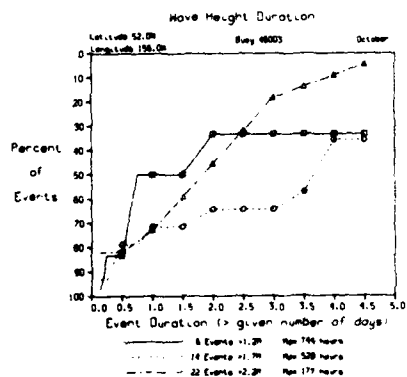
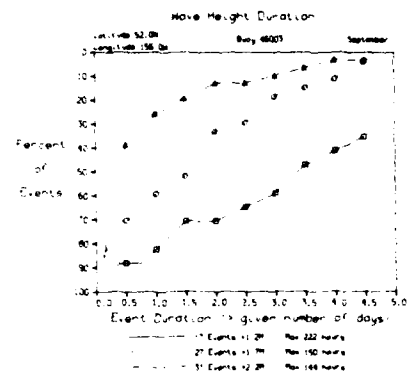
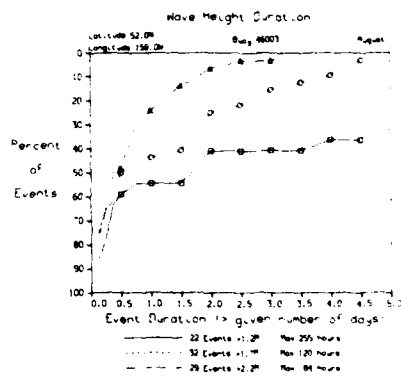
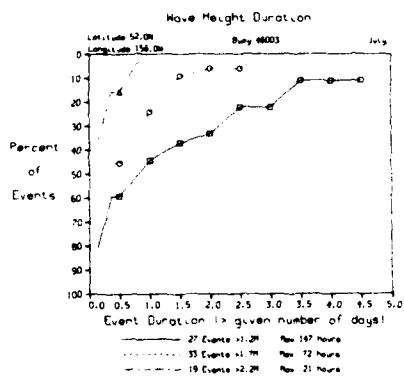
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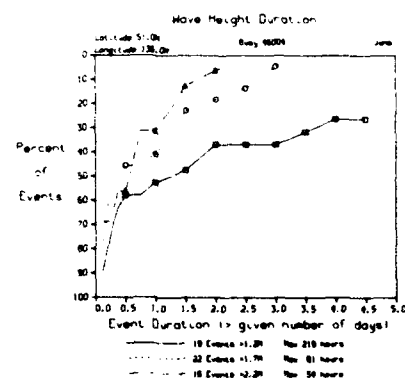
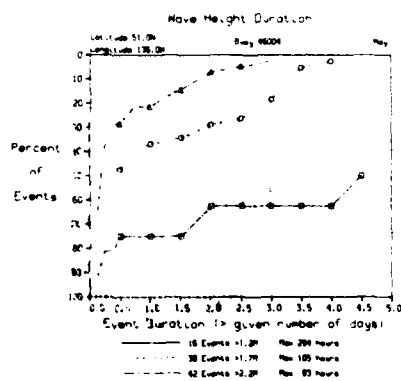
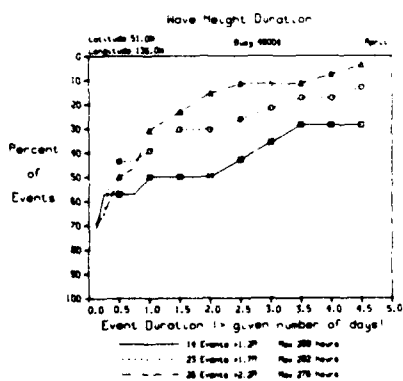
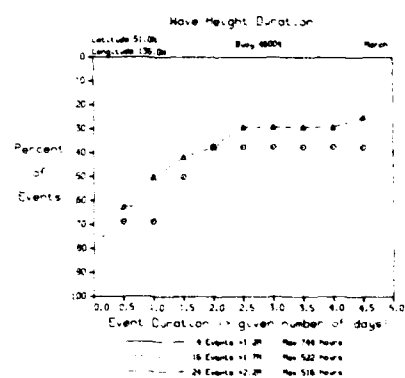
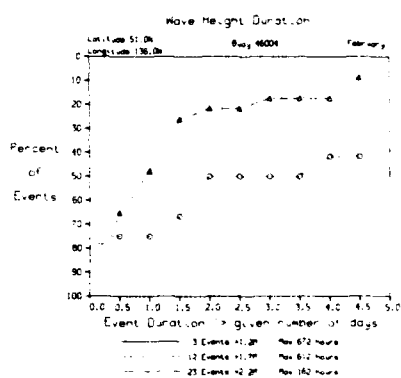
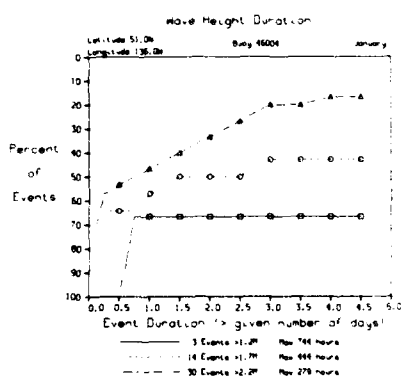


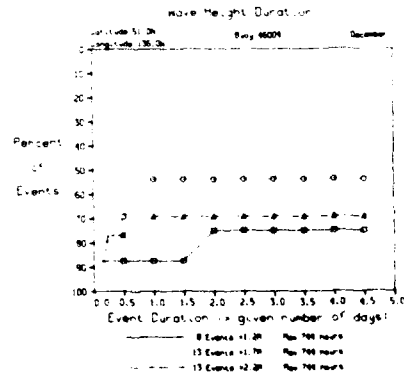
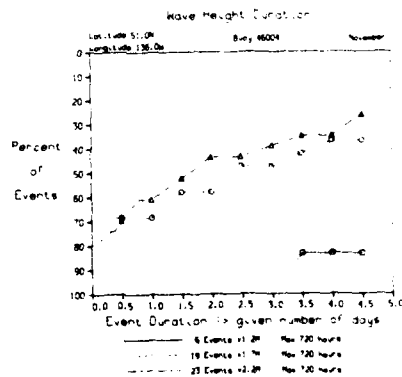
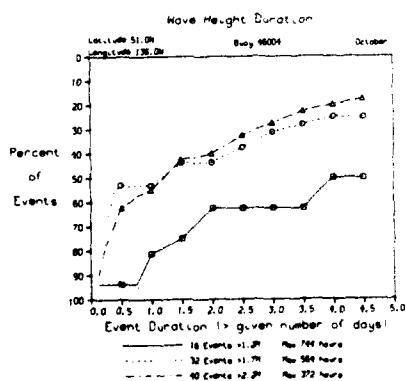
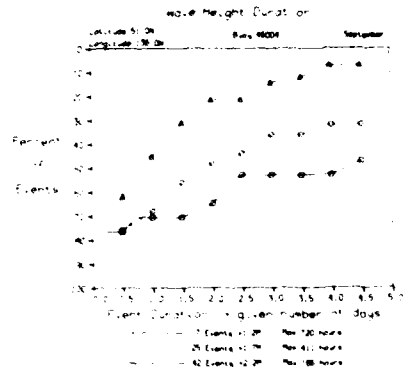
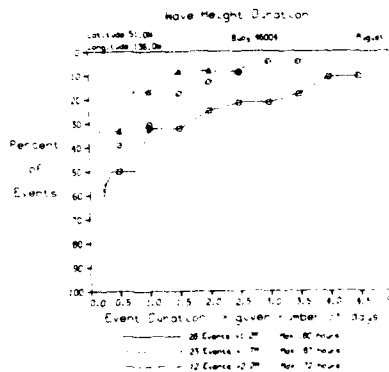
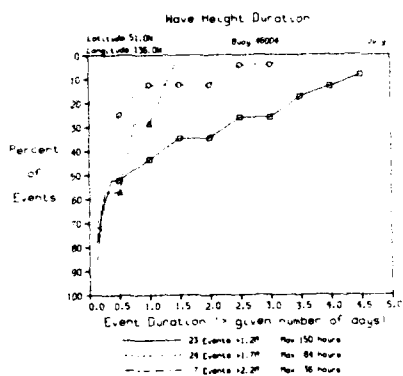
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS - 961 - A

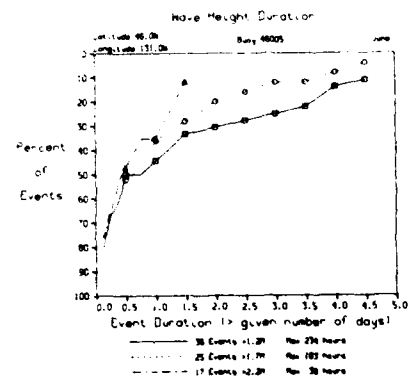
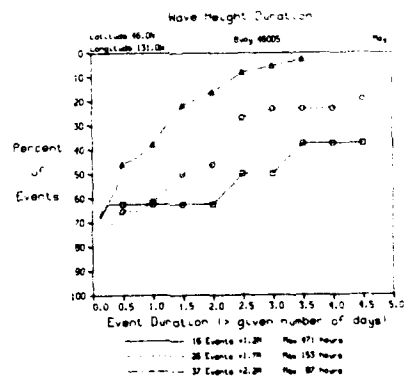
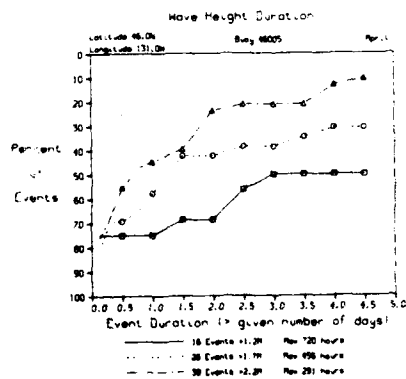
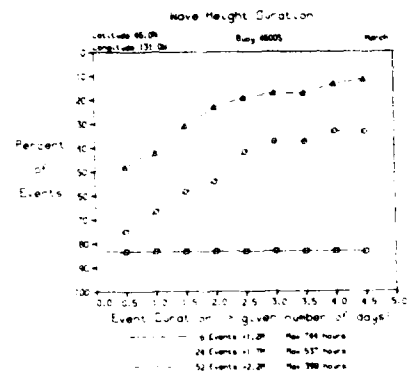
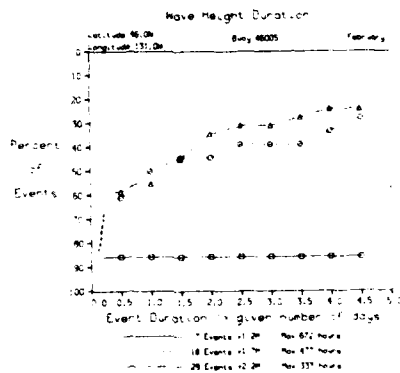
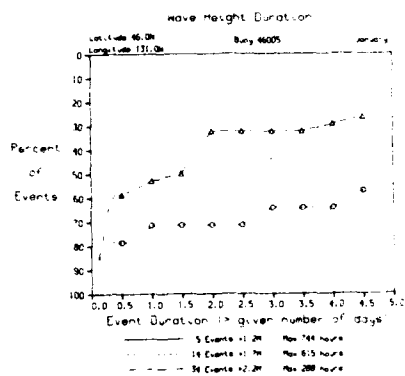


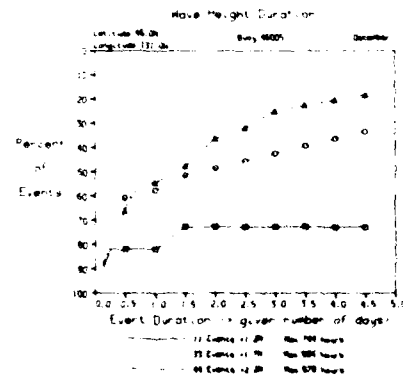
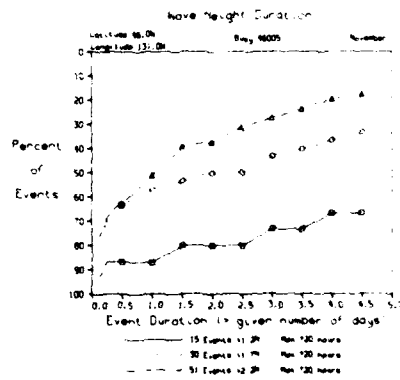
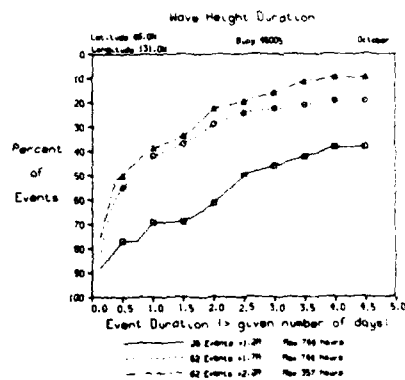
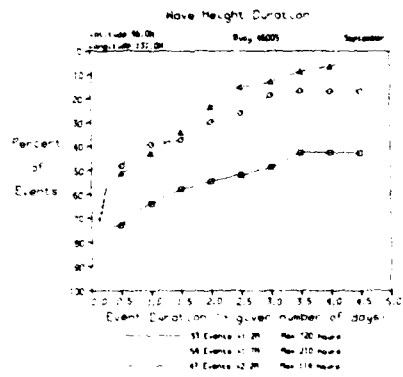
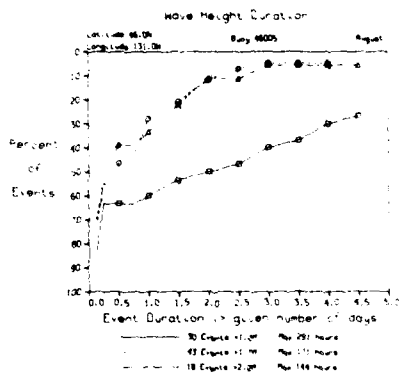
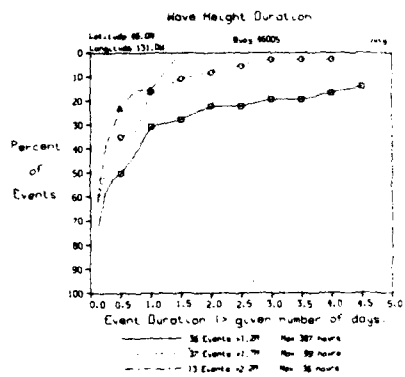


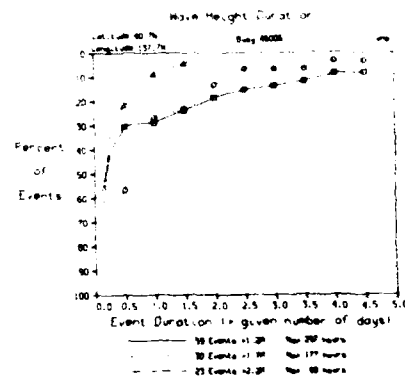
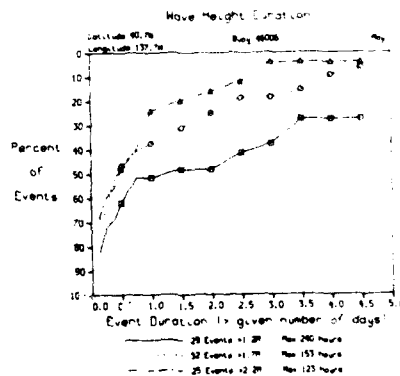
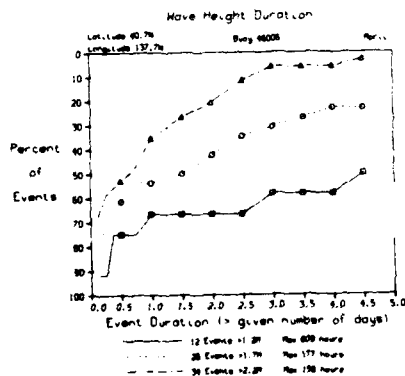
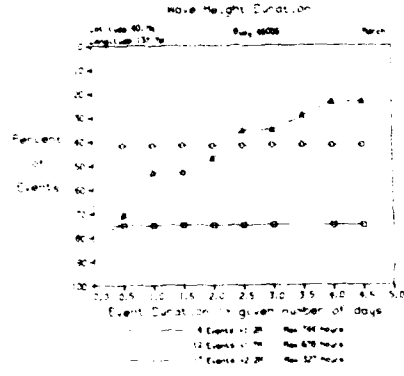
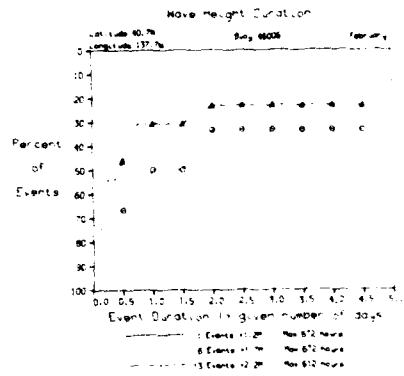
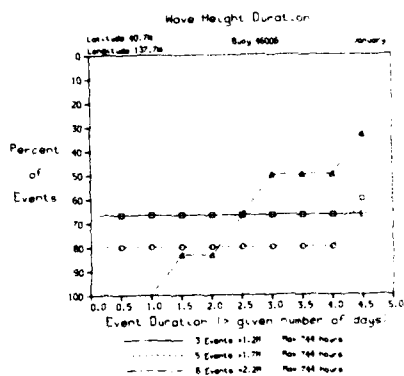


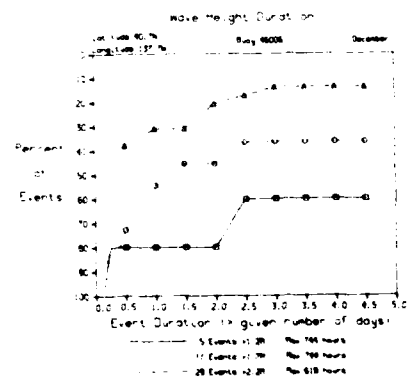
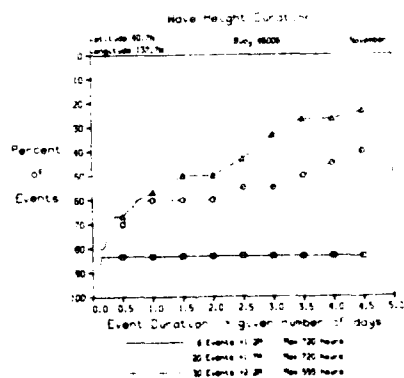
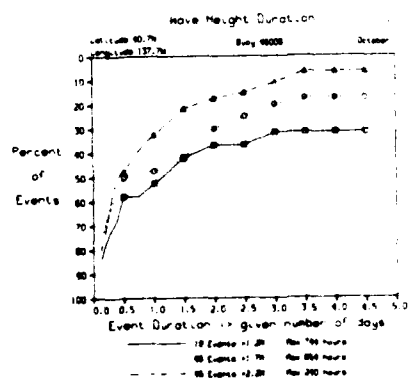
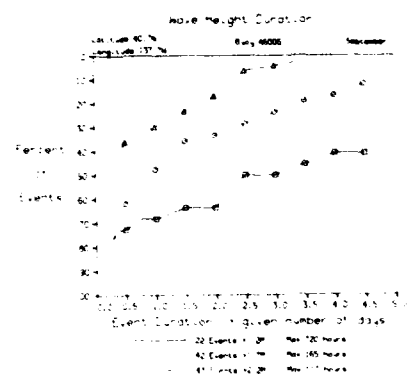
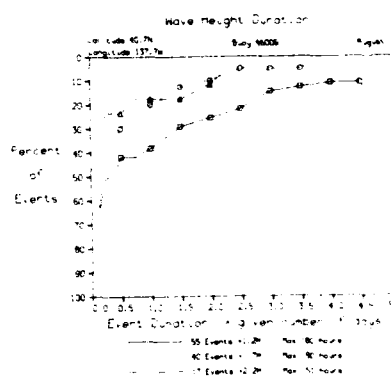
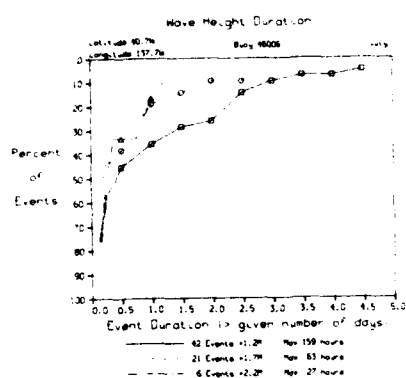


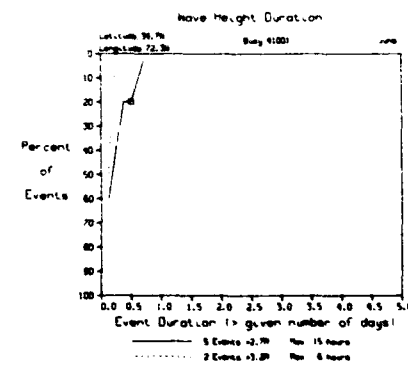
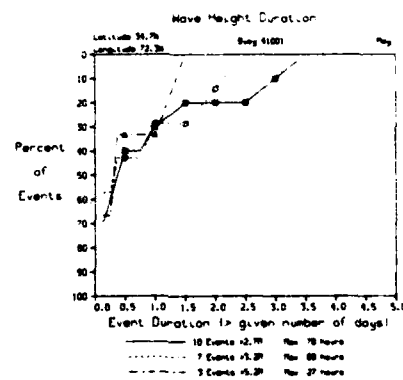
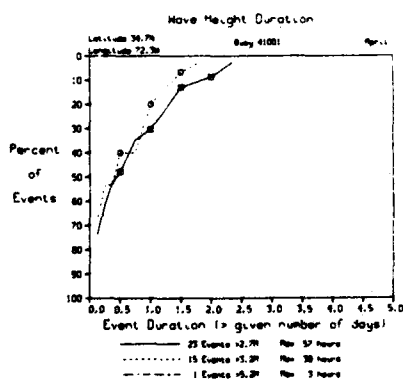
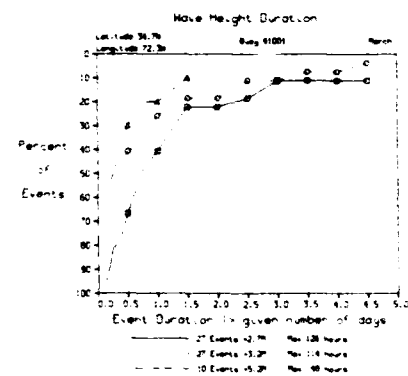
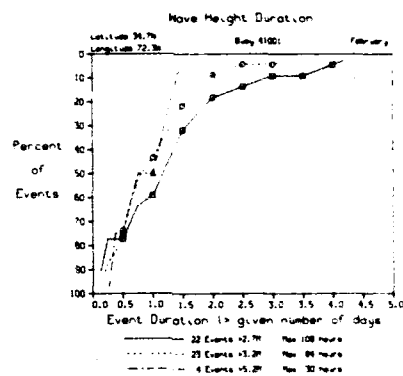
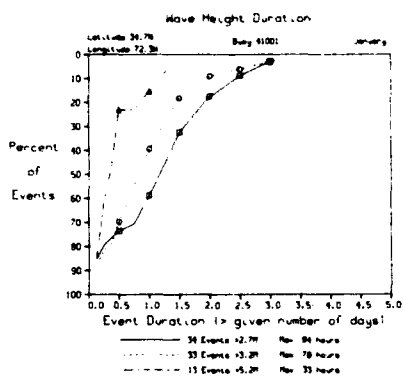


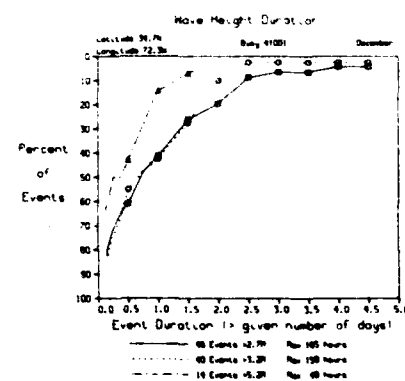
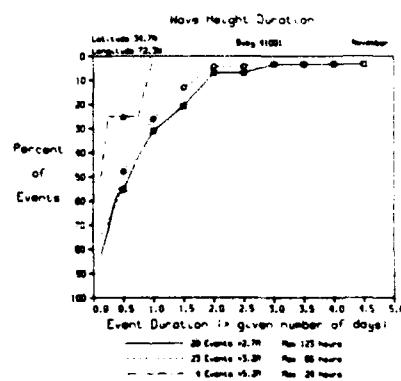
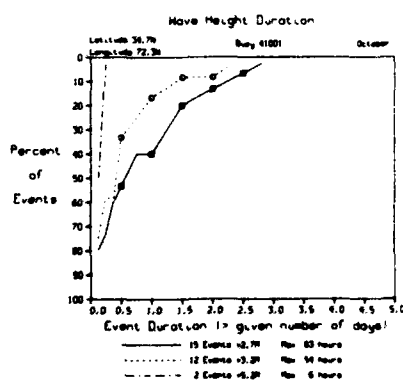
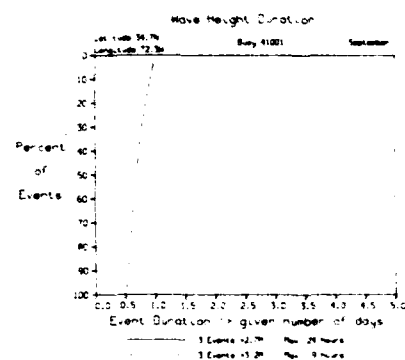
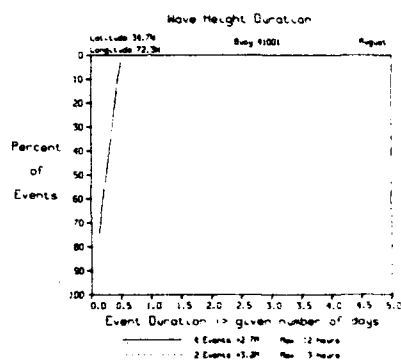
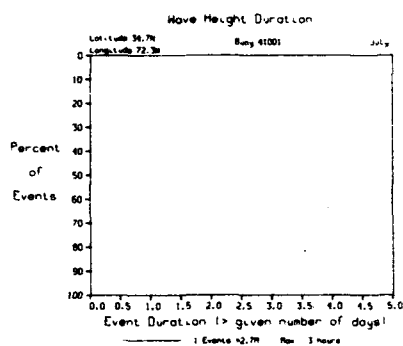


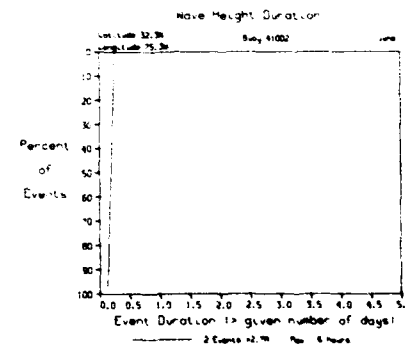
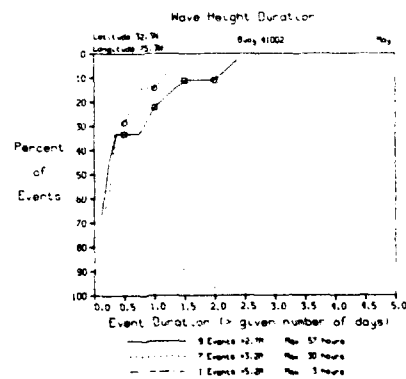
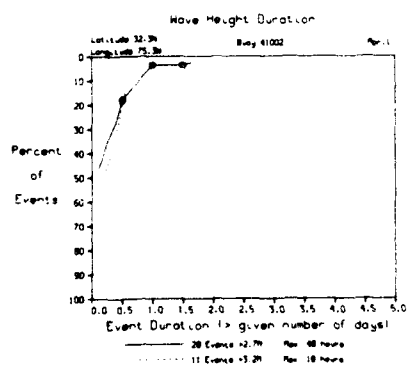
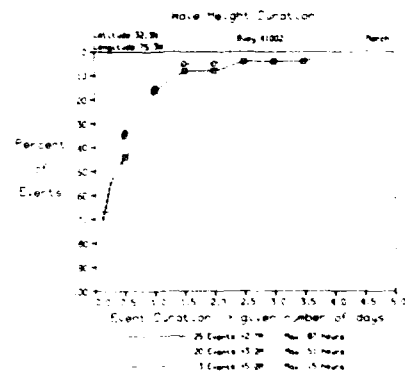
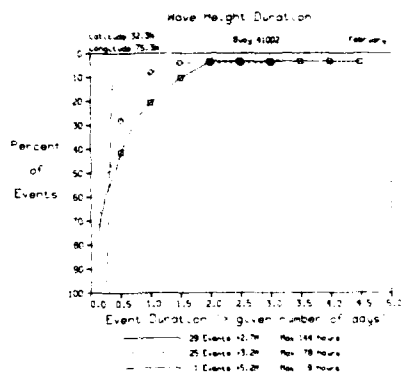
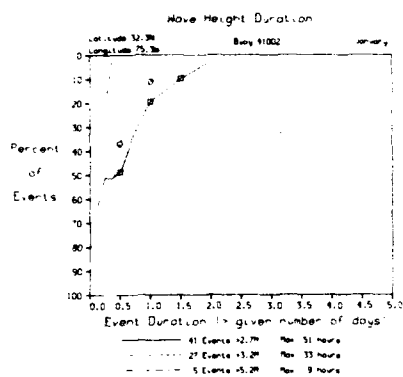


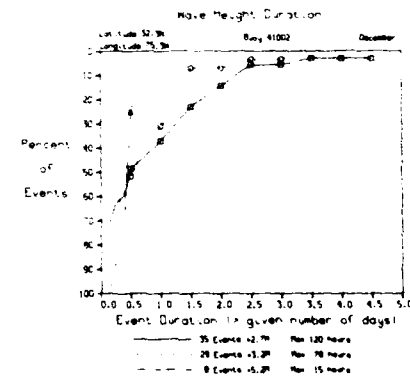
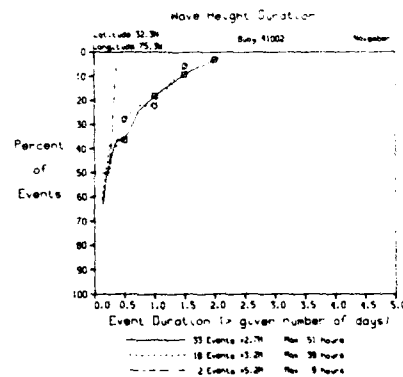
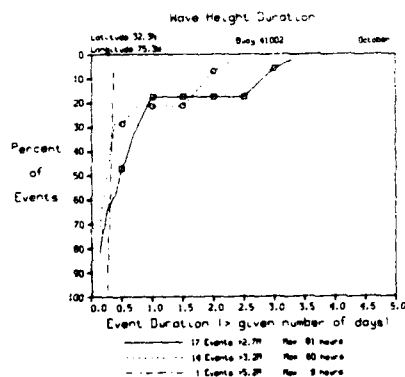
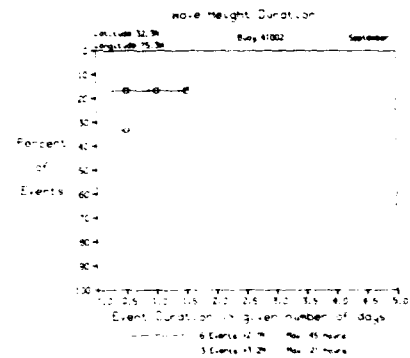
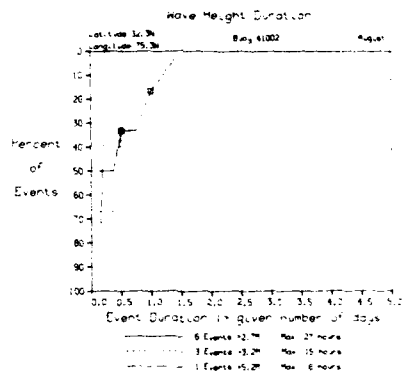
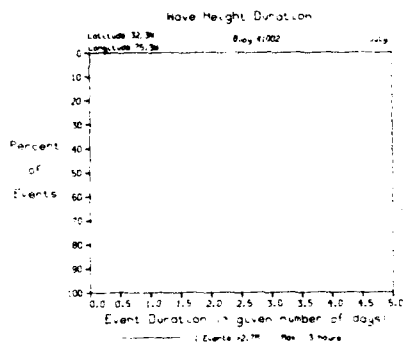


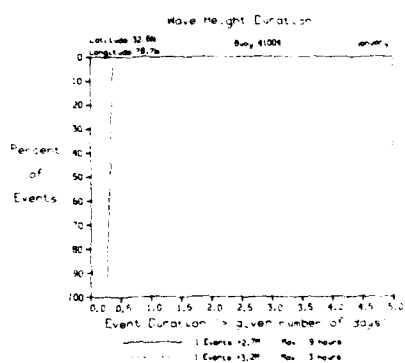












No Occurrences in
February

No Data Available for
March

No Data Available for
April

No Occurrences in
May

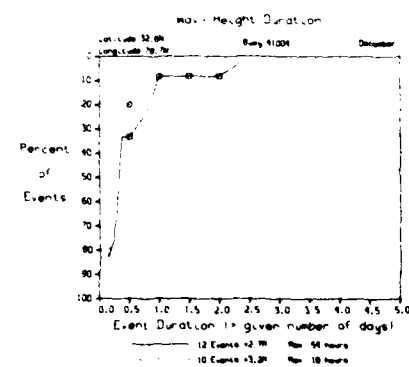
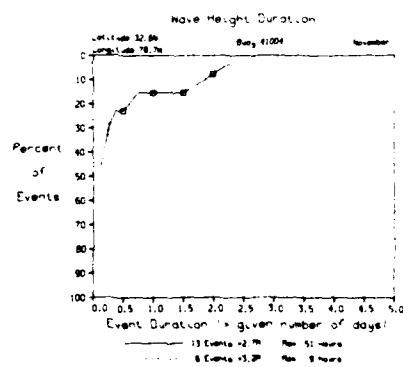
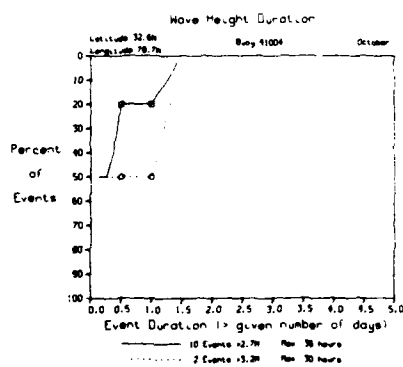
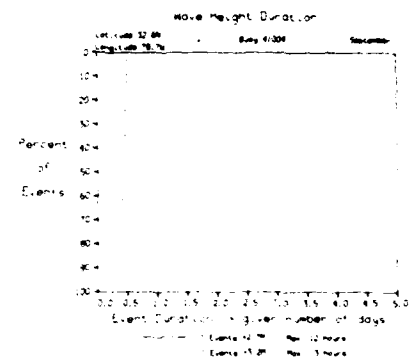
No Occurrences in
June

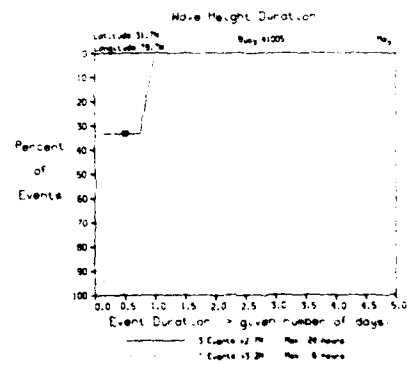
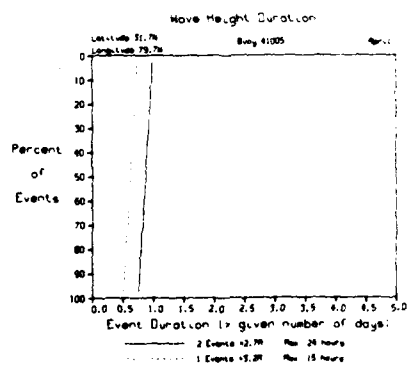
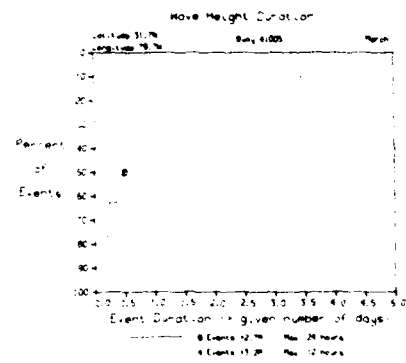
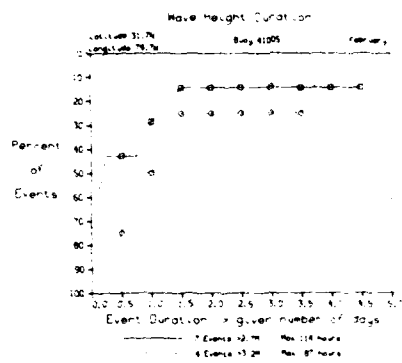
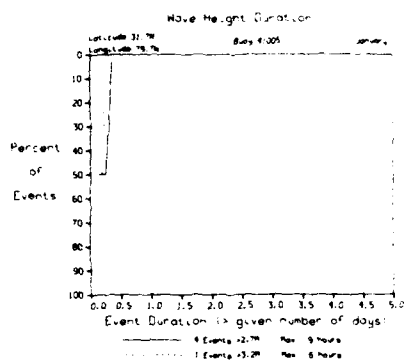
No Occurrences in

July

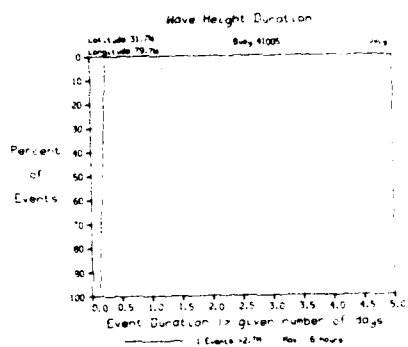
No Occurrences in

August

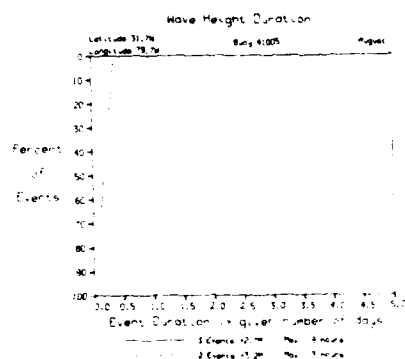




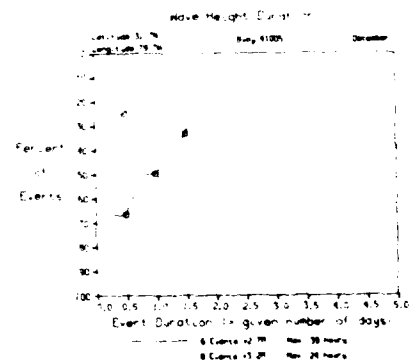
No Occurrences in
June



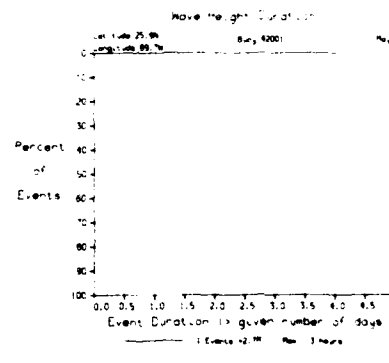
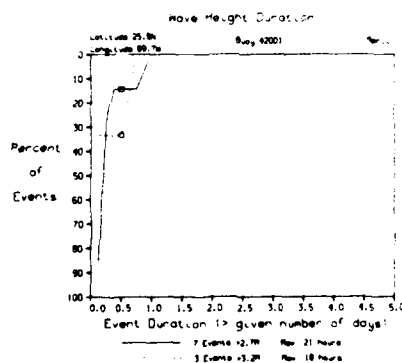
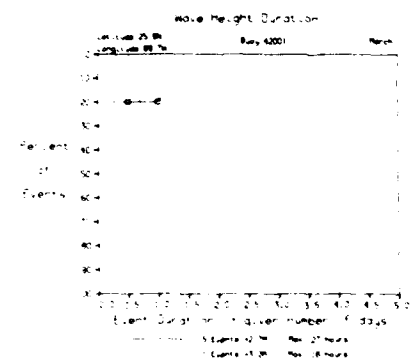
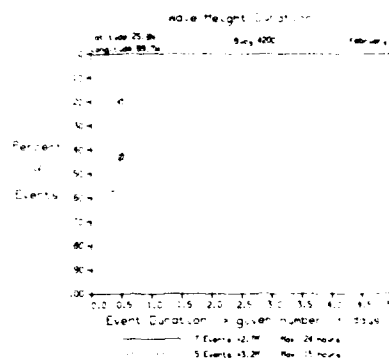
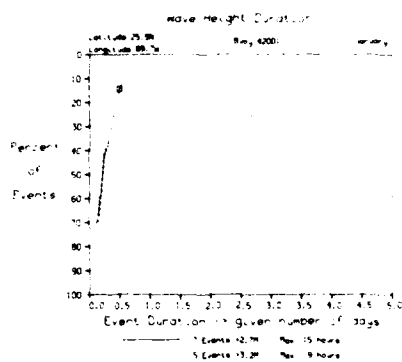
No Data Available for
October



No Data Available for
November

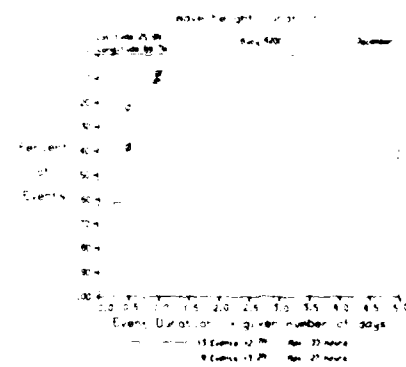
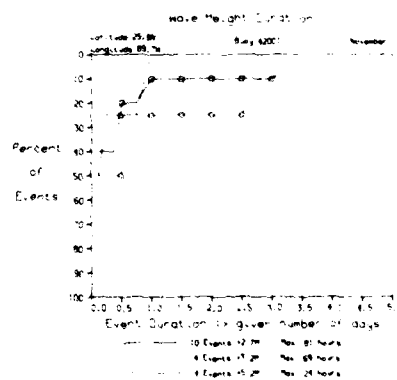
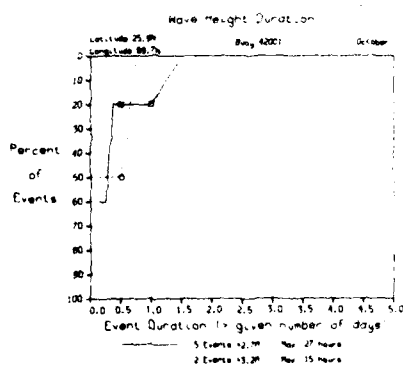
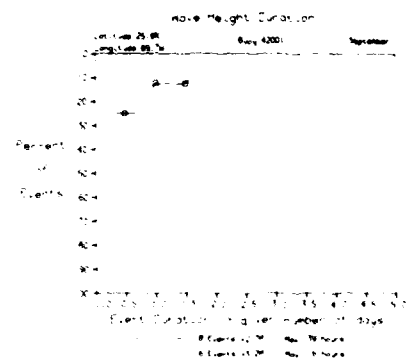
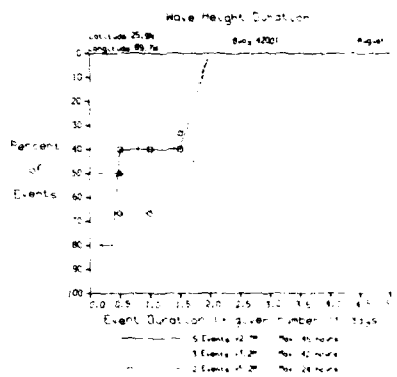
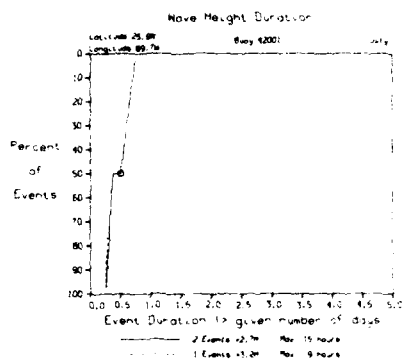


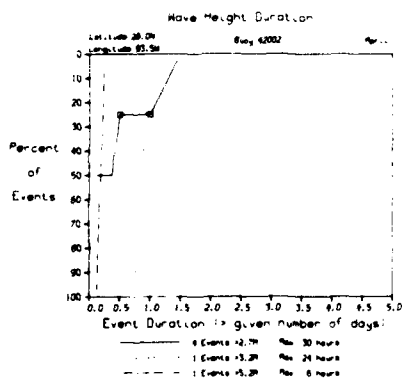
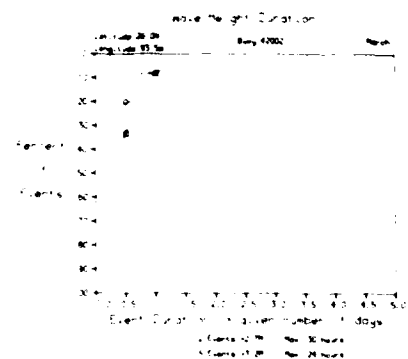
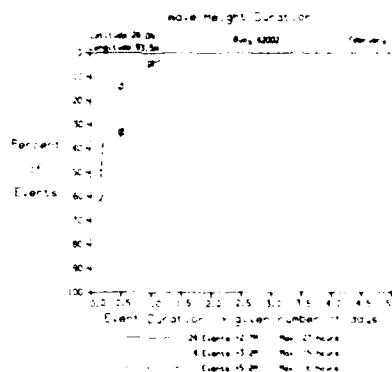
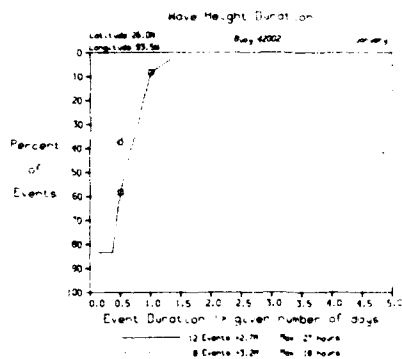
No Occurrences in
September



No. Occurrences in

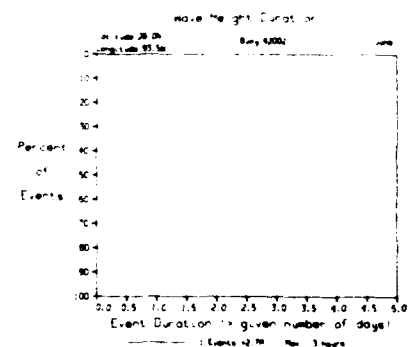
July





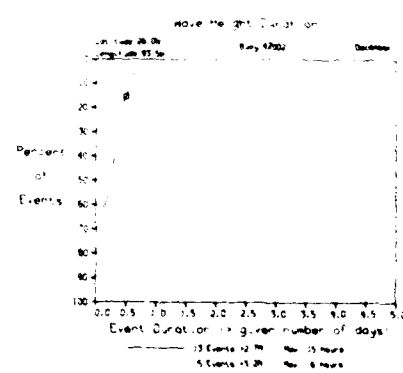
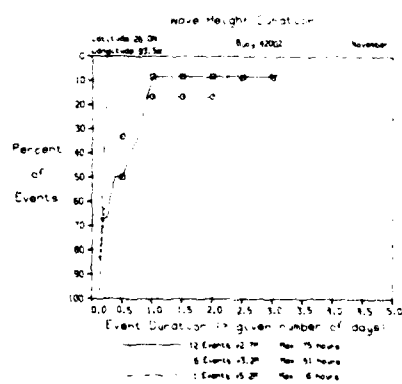
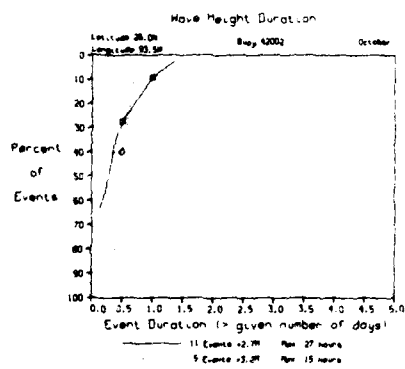
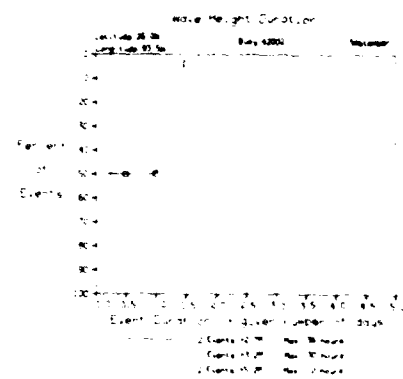
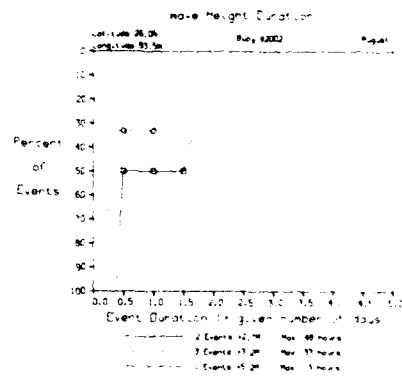
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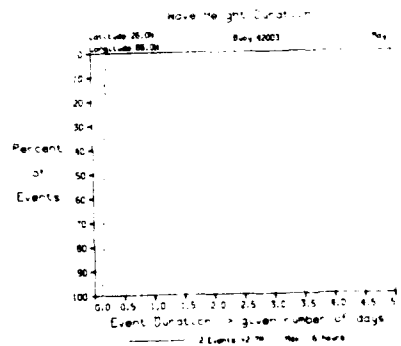
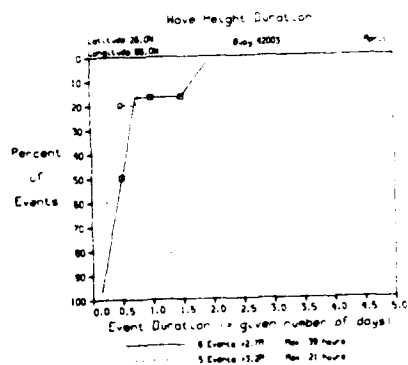
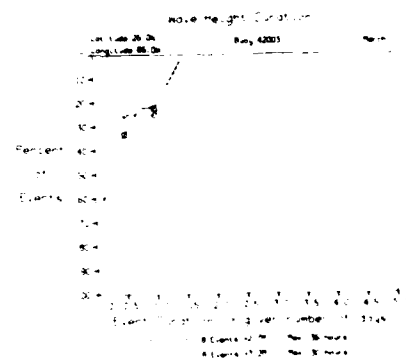
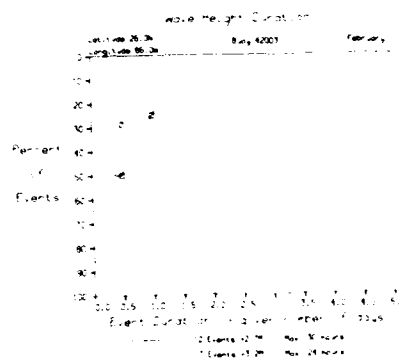
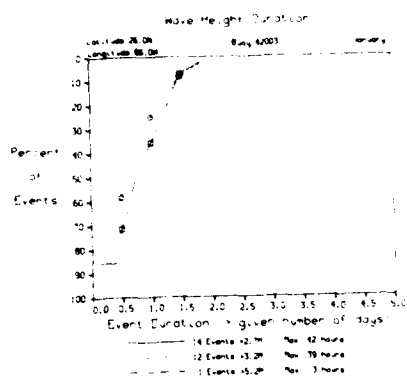
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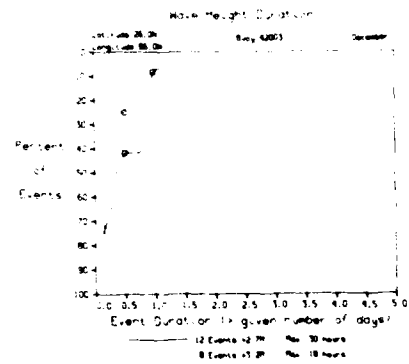
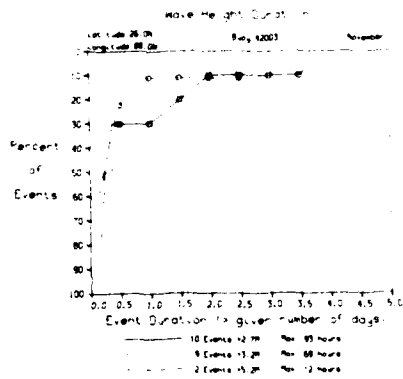
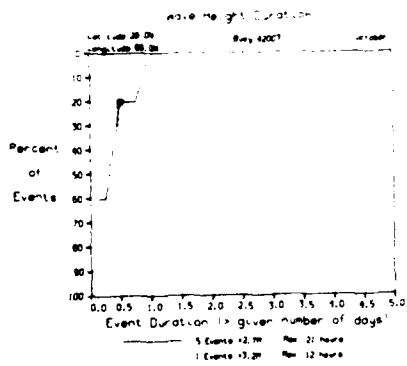
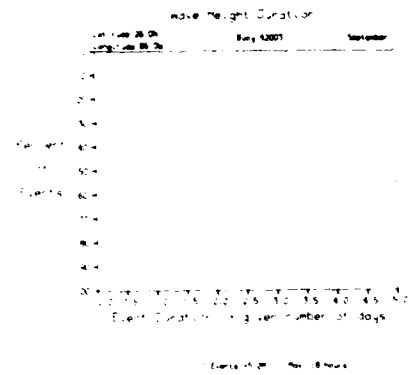
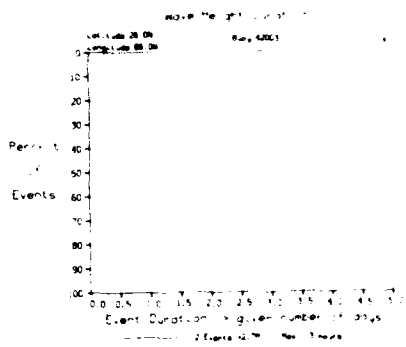


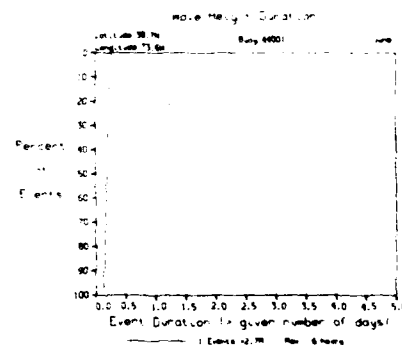
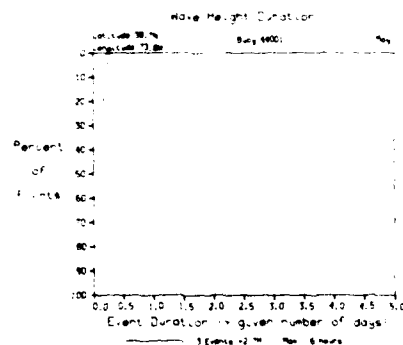
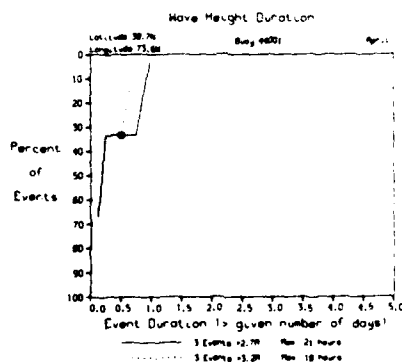
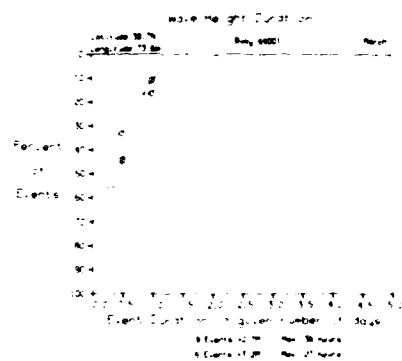
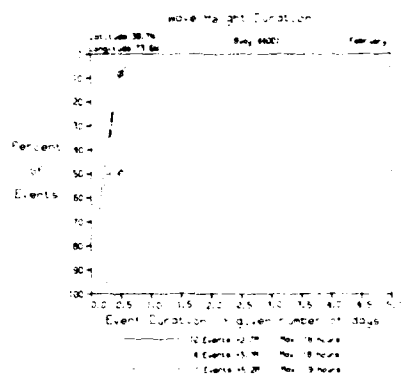
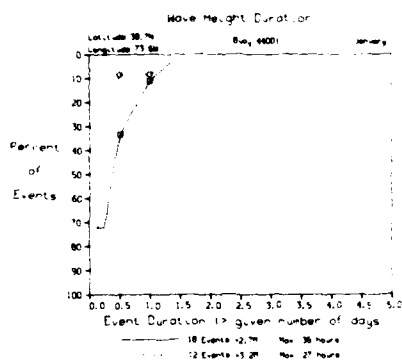
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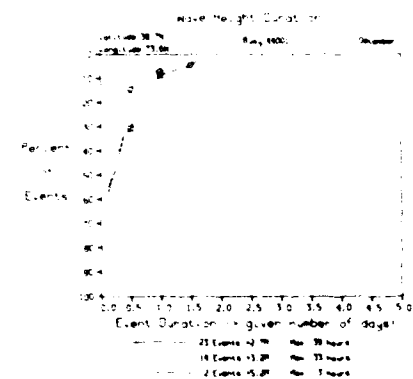
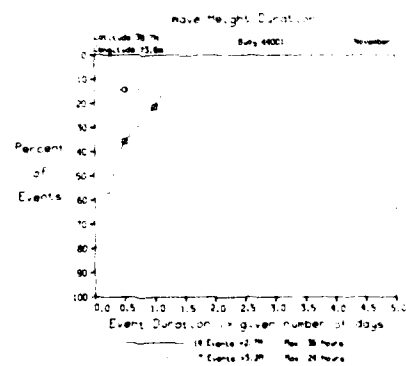
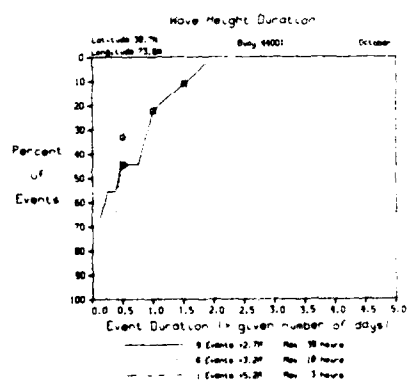
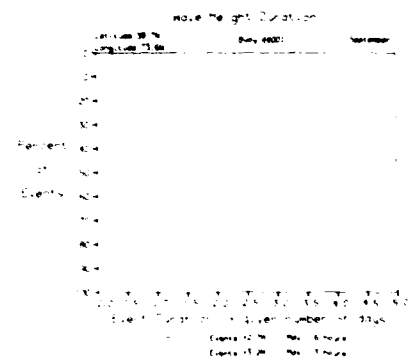
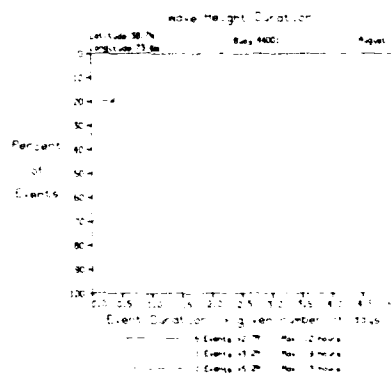
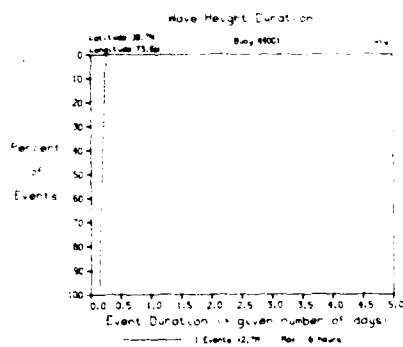
July











No Data Available for

January

No Data Available for

February

No Data Available for

March

No Data Available for

April

No Data Available for

May

No Data Available for

June

No Data Available for
July

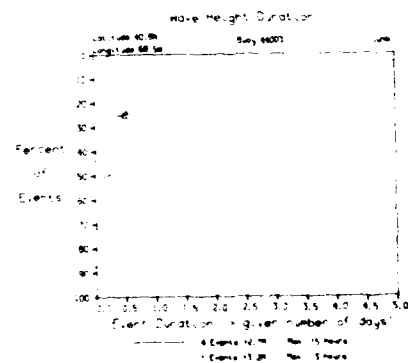
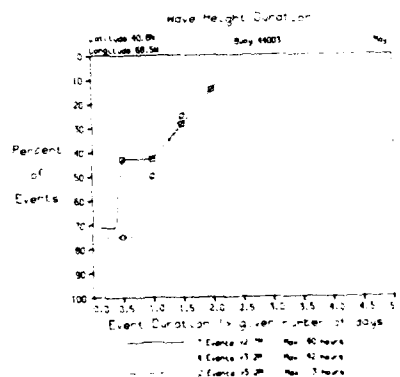
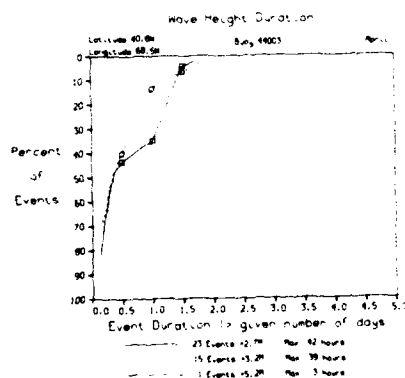
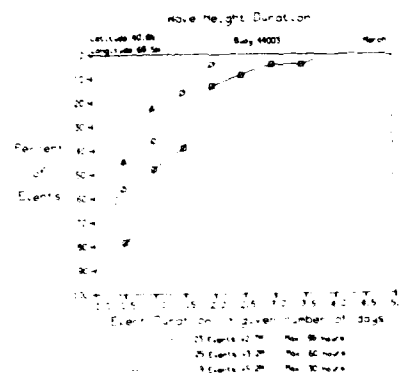
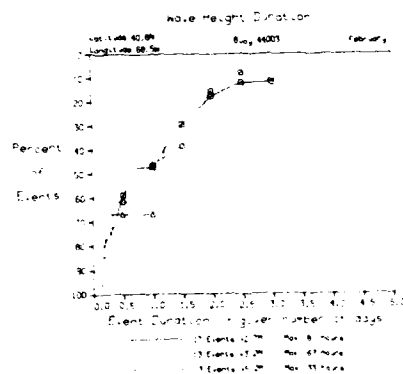
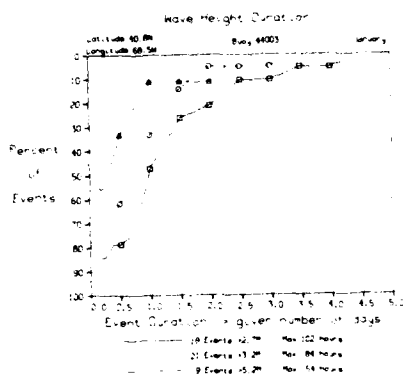
No Data Available for
August

No Data Available for
September

No Data Available for
October

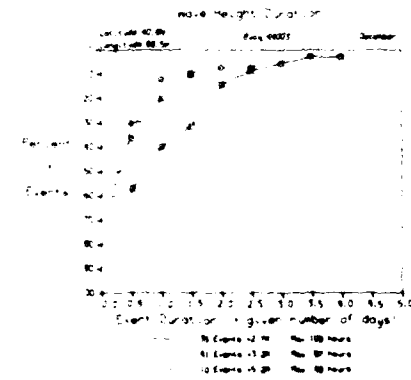
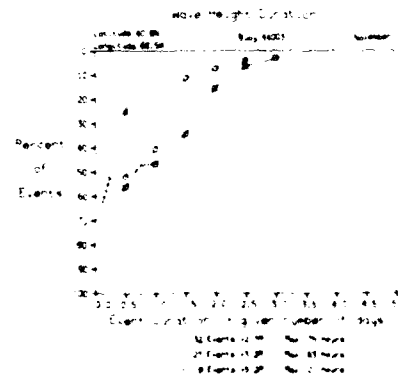
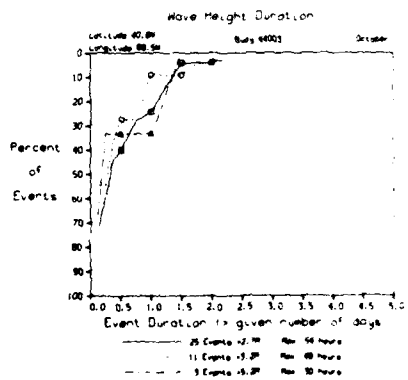
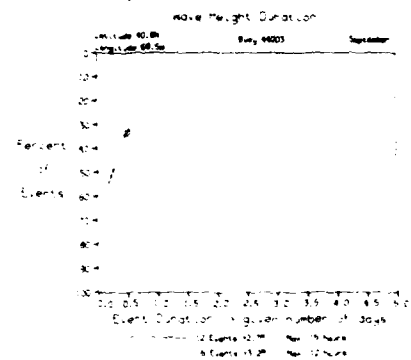
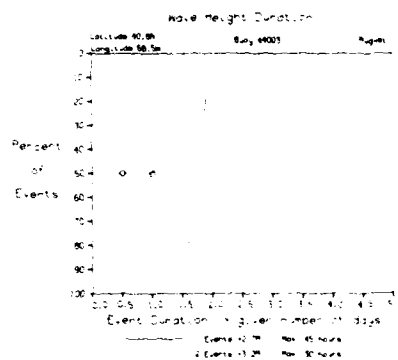
No Data Available for
November

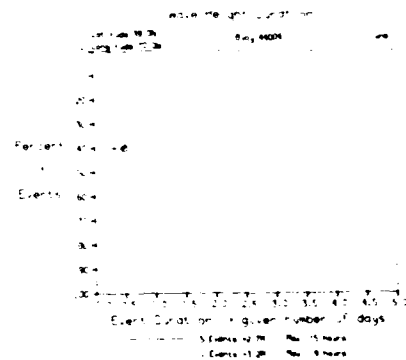
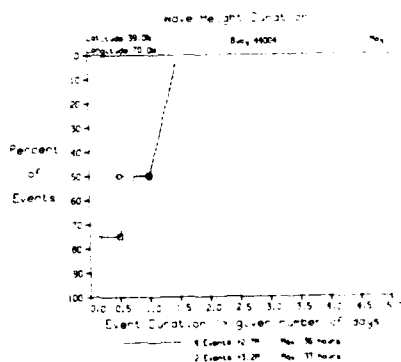
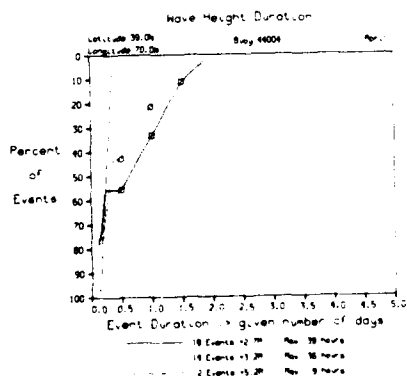
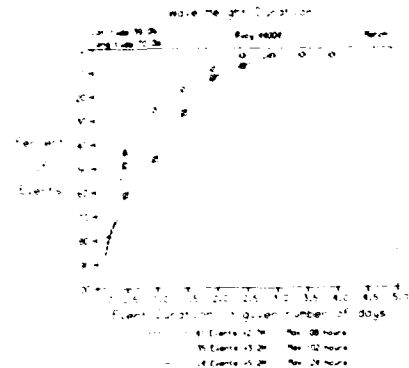
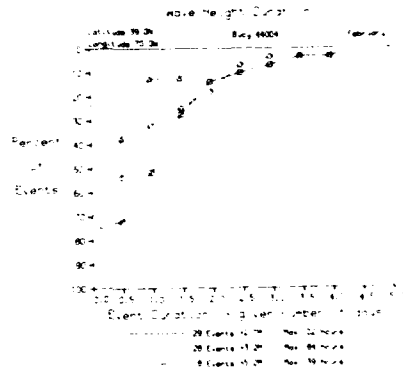
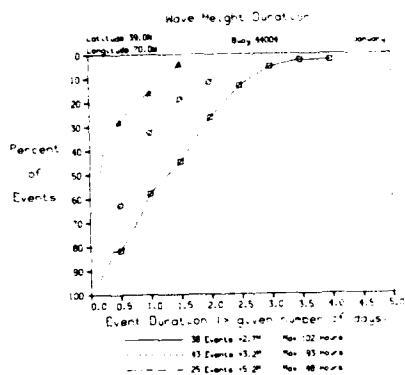
No Data Available for
December



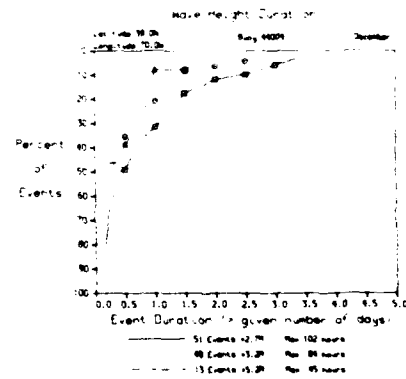
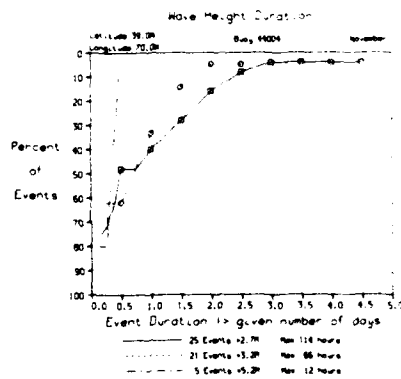
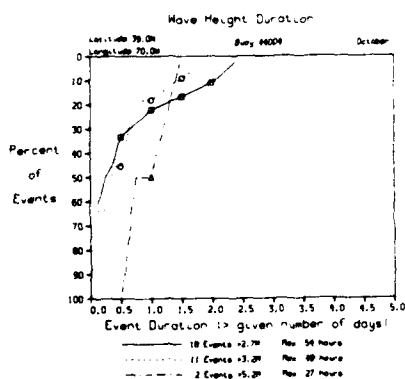
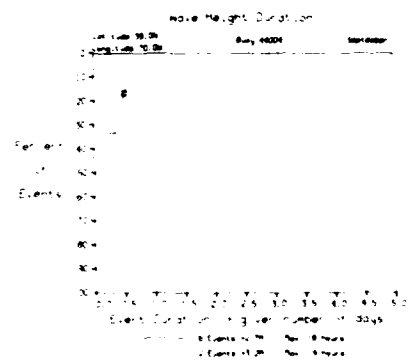
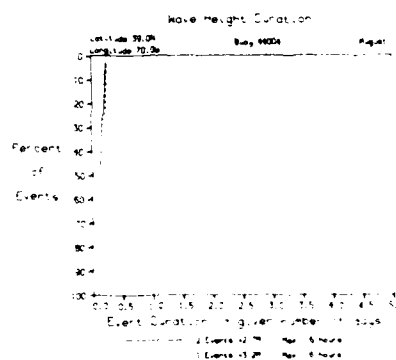
No Occurrences in

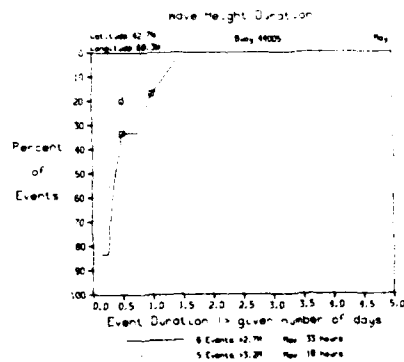
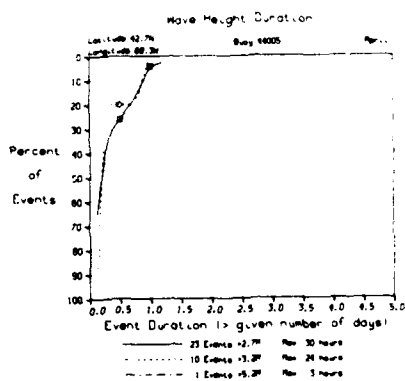
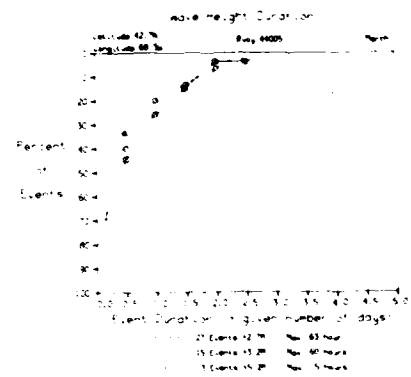
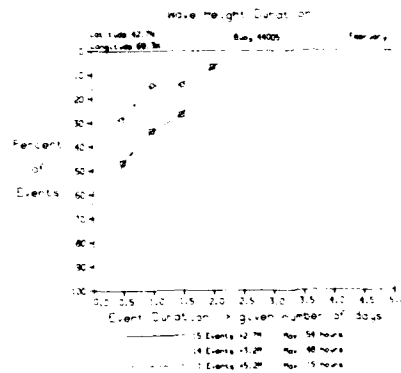
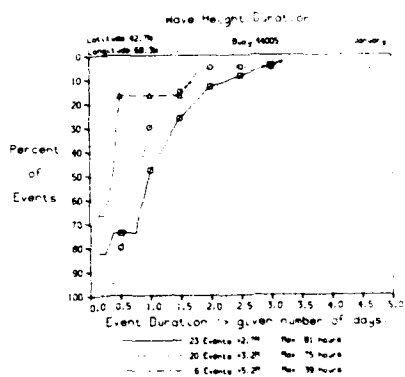
July





No Data Available for





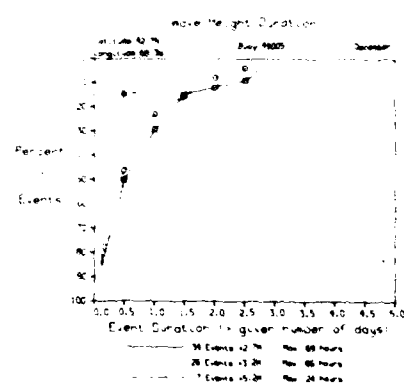
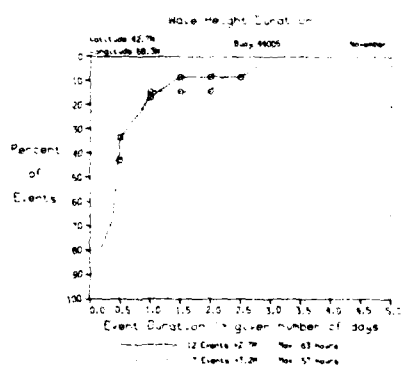
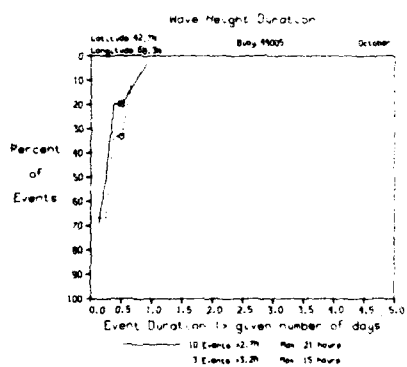
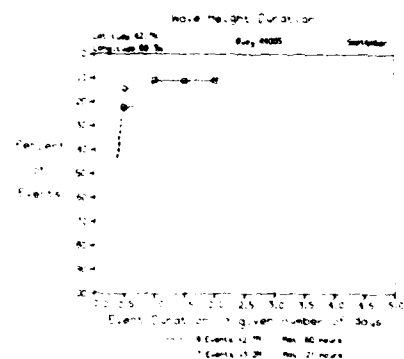
No Occurrences in

June

No Occurrences in

No Occurrences in

August



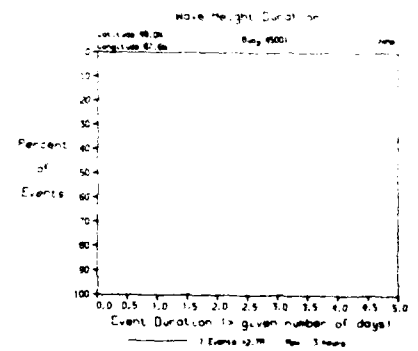
No Data Available for
January

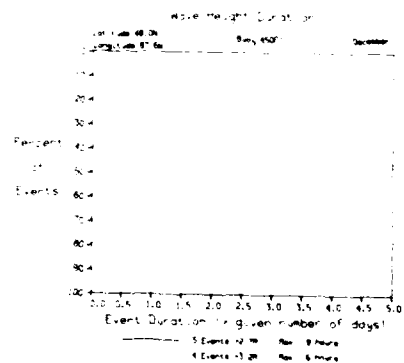
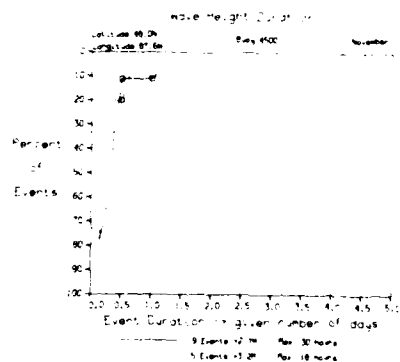
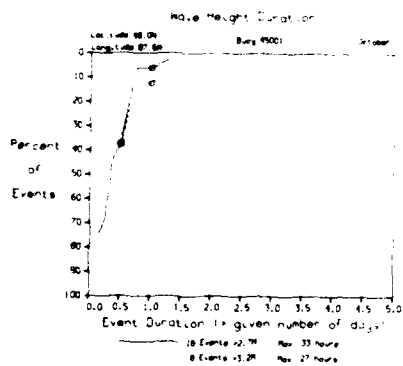
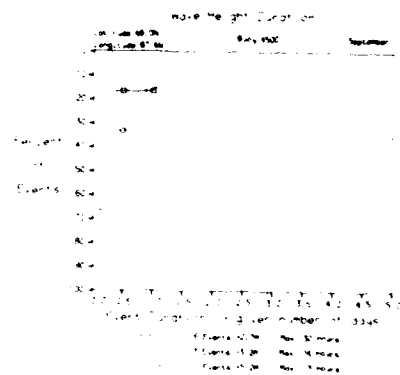
No Data Available for
February

No Data Available for
March

No Data Available for
April

No Occurrences in
May





No Data Available for

January

No Data Available for

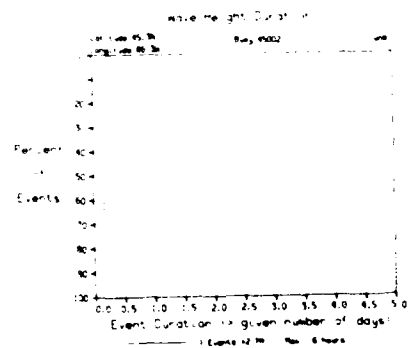
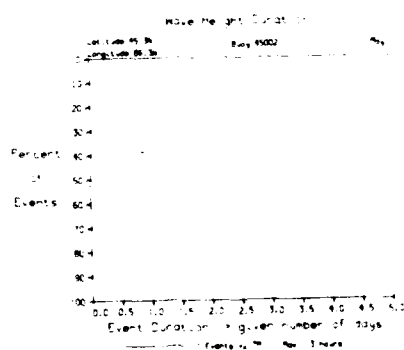
February

No Data Available for

March

No Occurrences in

April



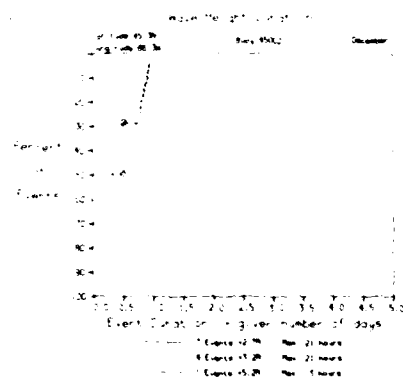
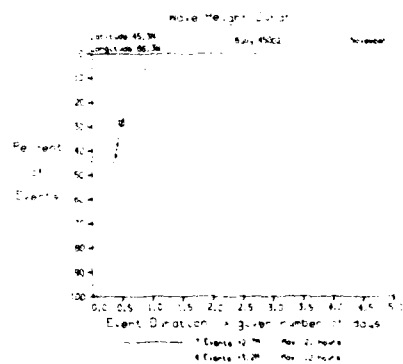
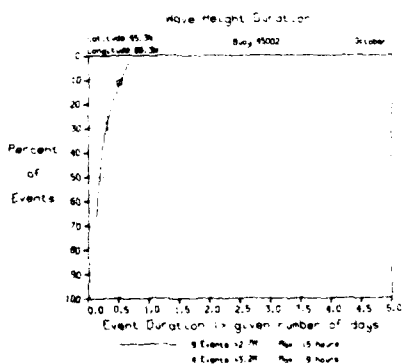
Wave Height Duration

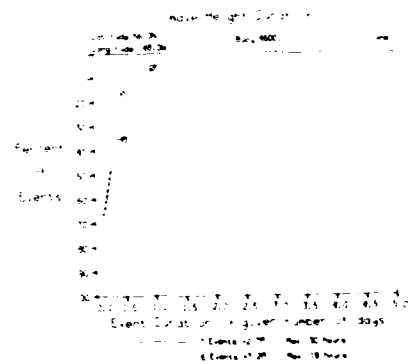
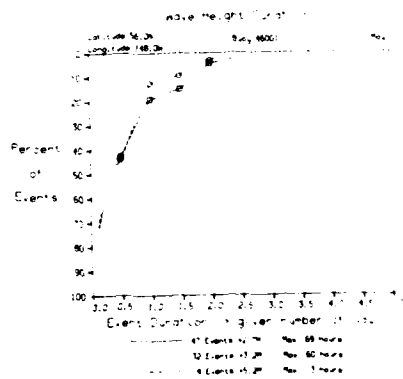
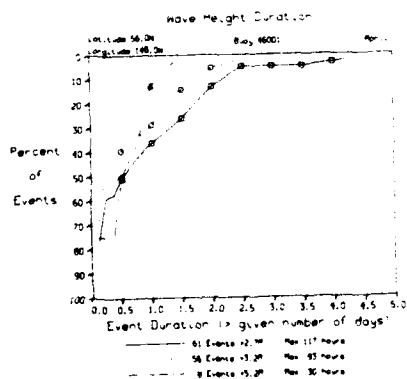
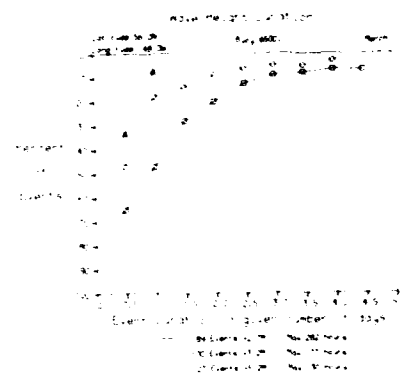
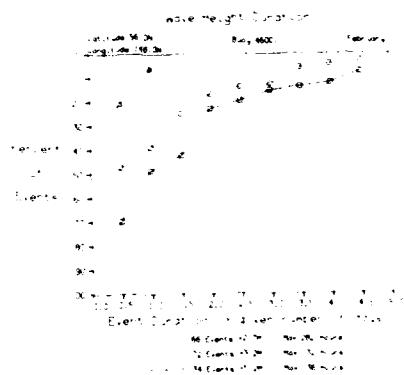
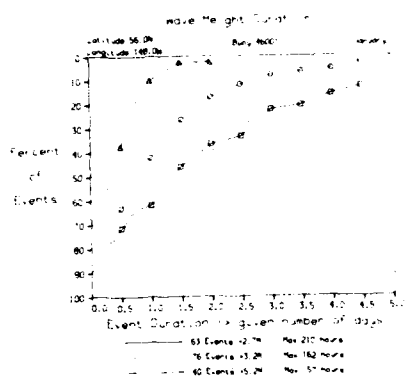
Wave Height Duration

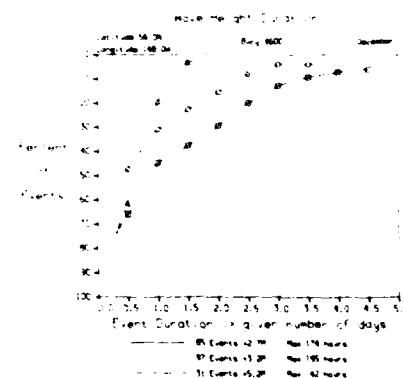
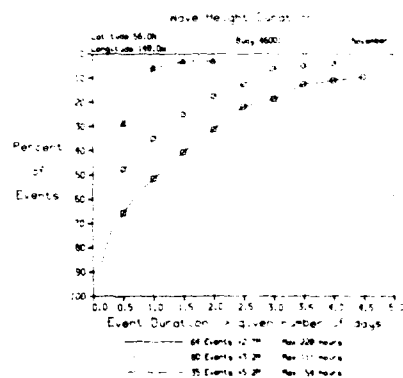
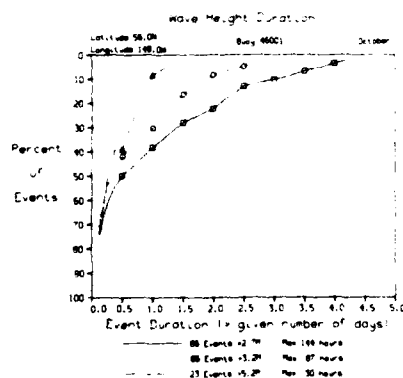
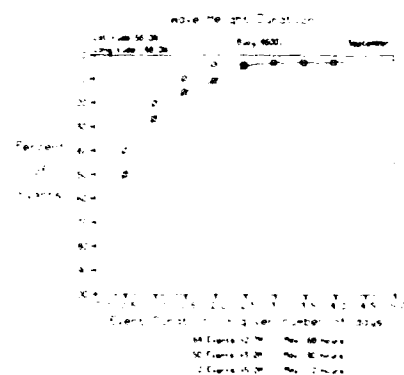
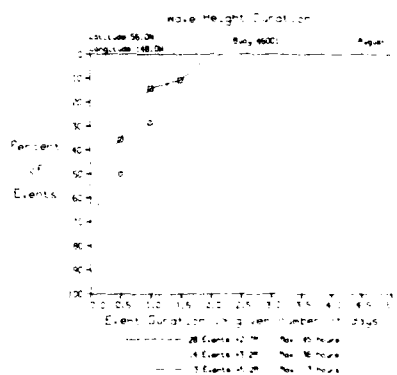
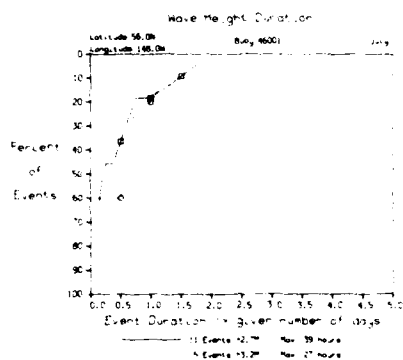
Wave Height Duration
Latitude 45.34 Longitude 66.36 Bay #5022 December

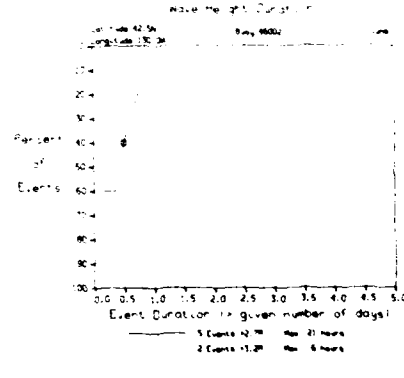
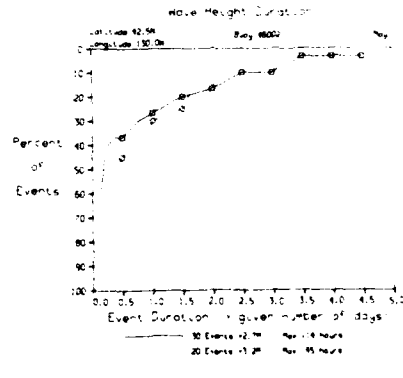
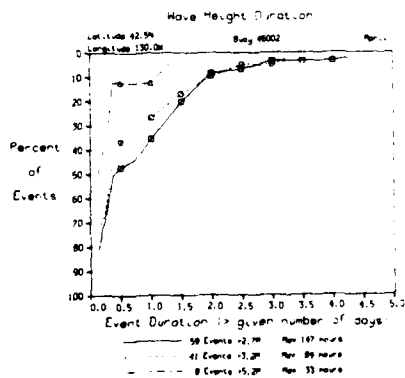
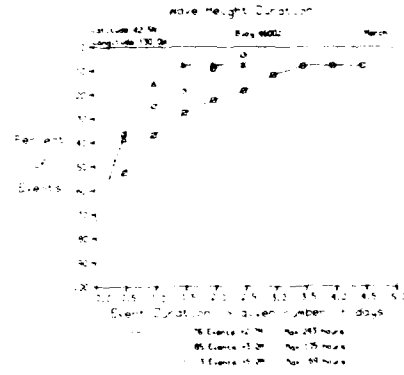
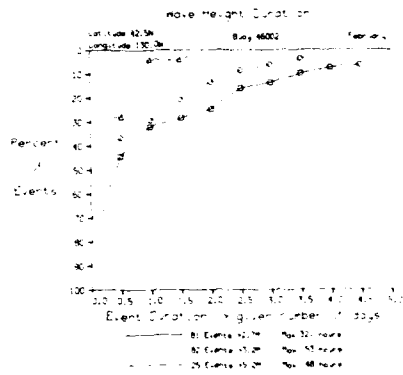
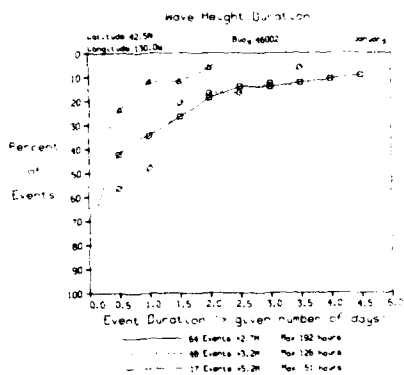
100
80
60
40
20
0

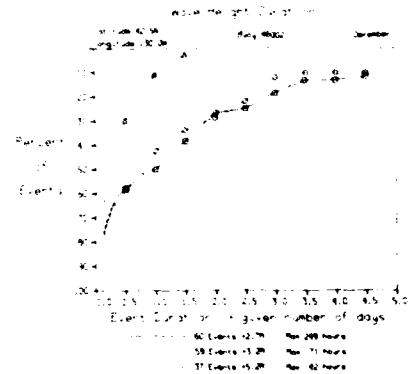
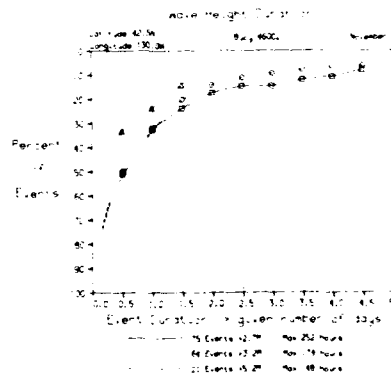
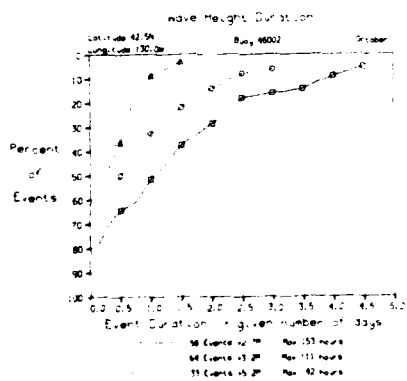
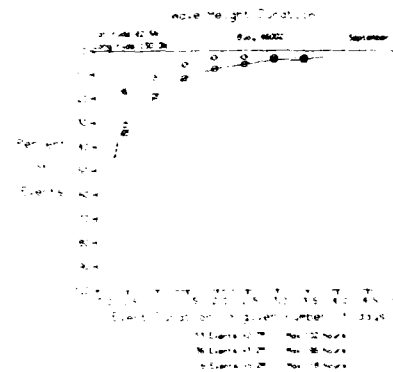
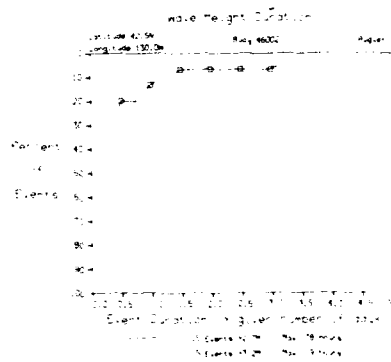
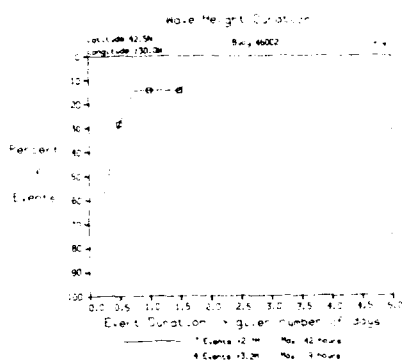
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0
Event Duration in given number of days
1 Events 12.76 Nov. 15 hours
4 Events 15.26 Nov. 9 hours

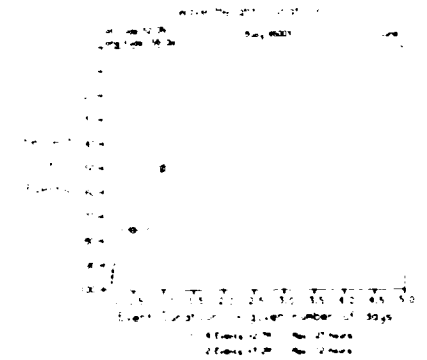
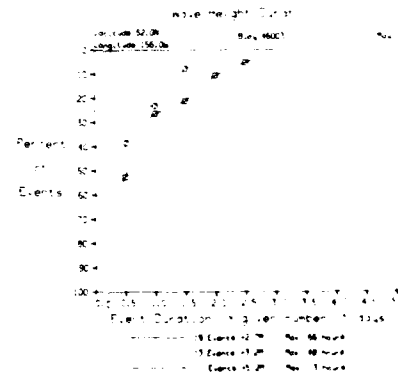
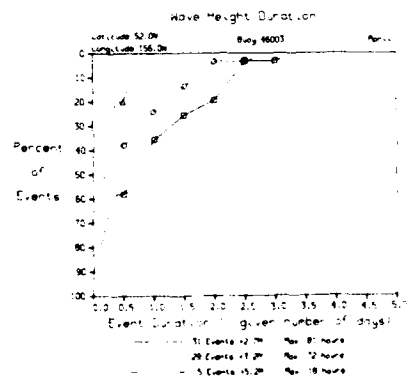
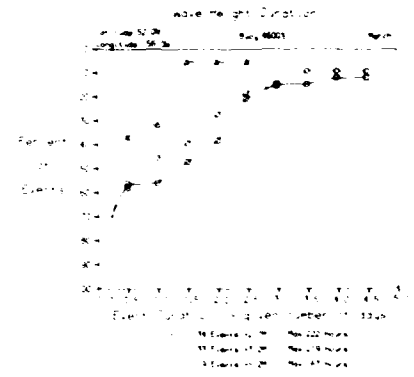
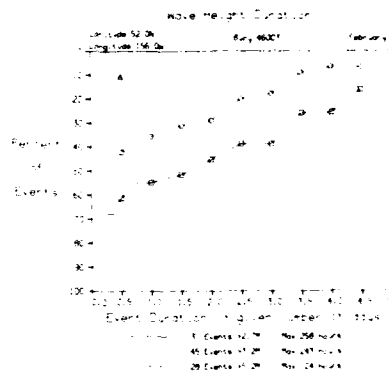
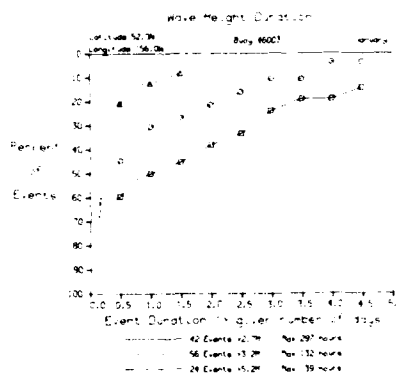


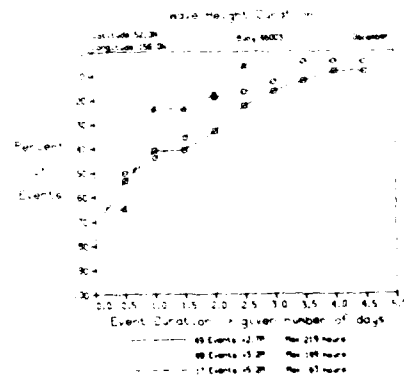
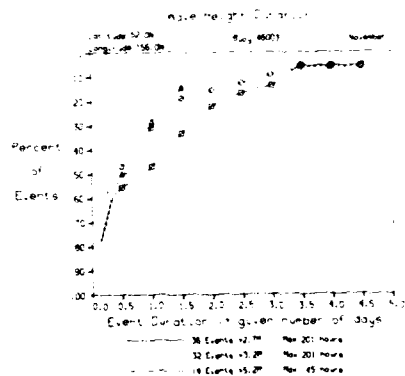
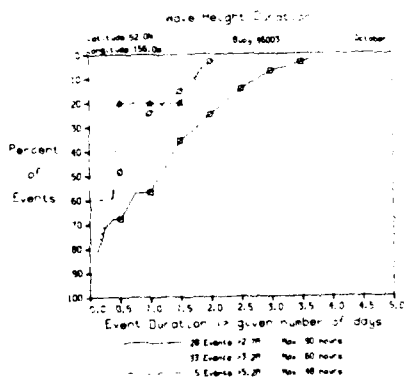
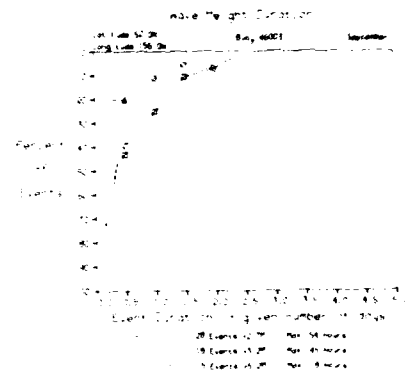
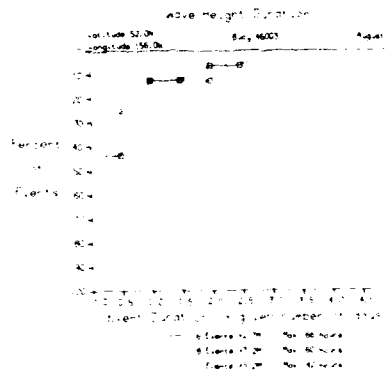
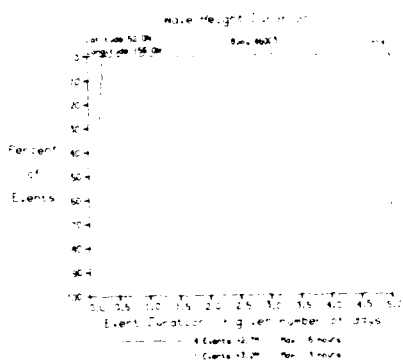


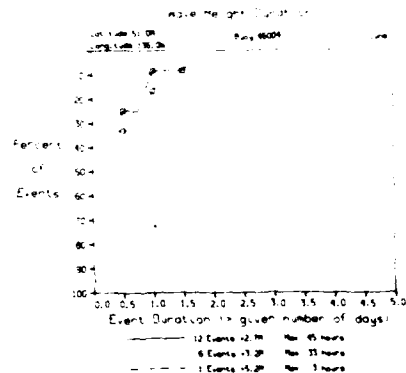
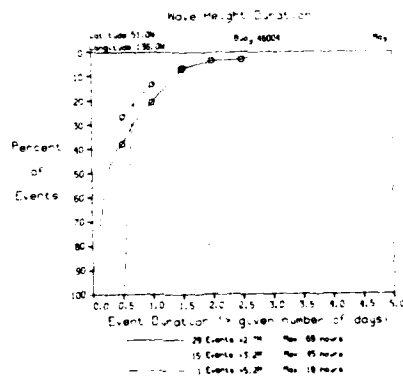
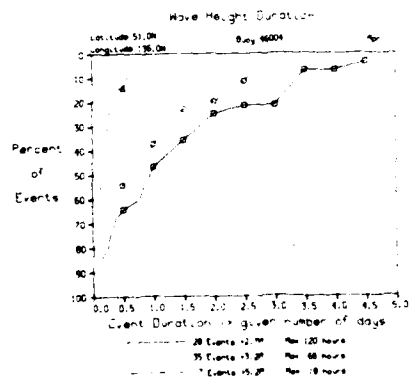
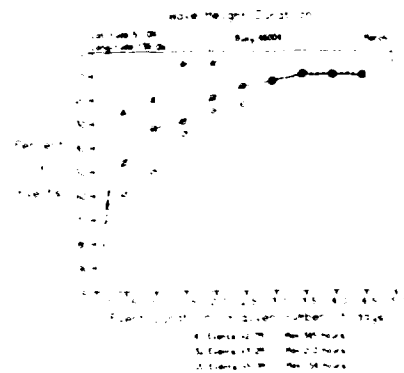
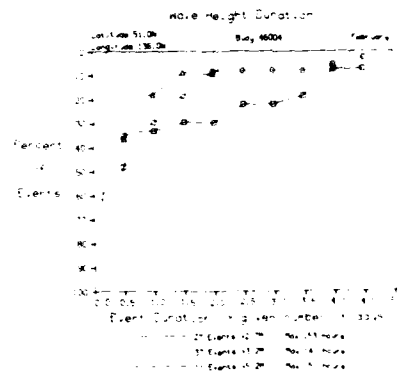
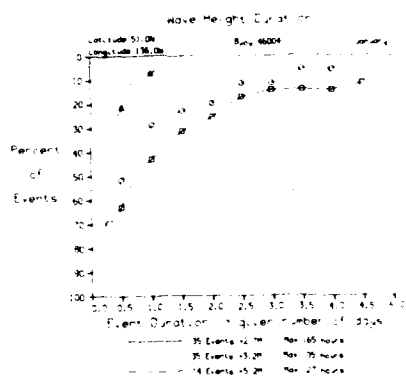


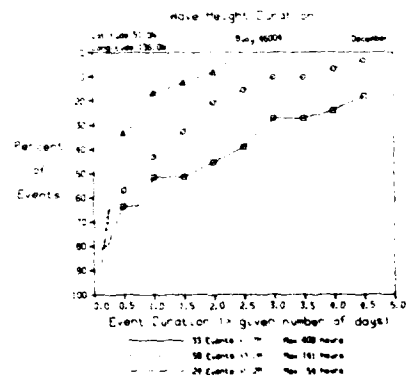
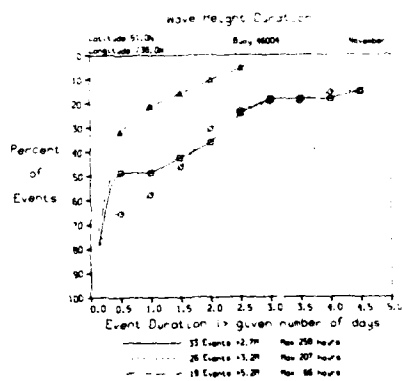
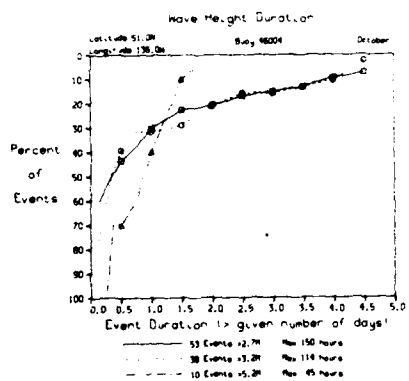
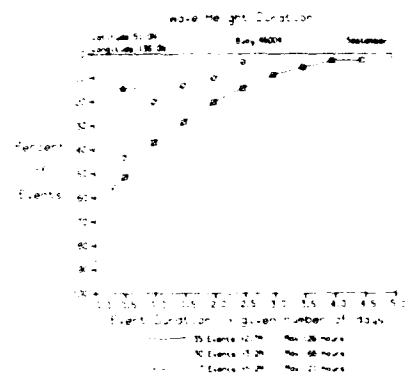
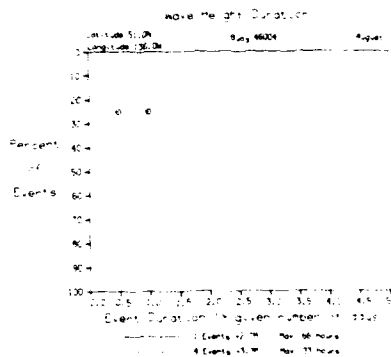
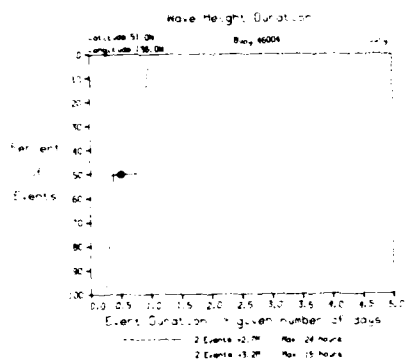


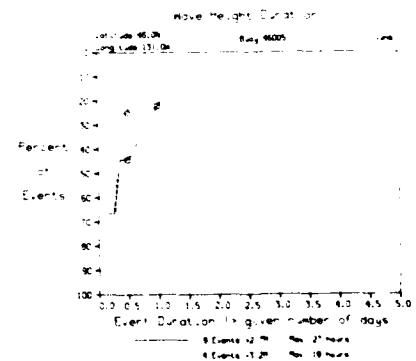
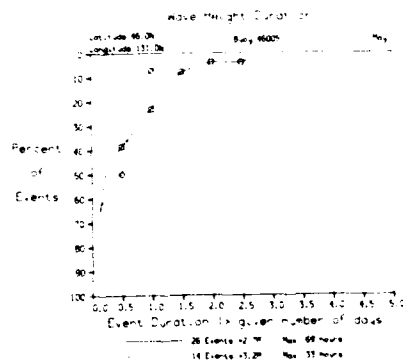
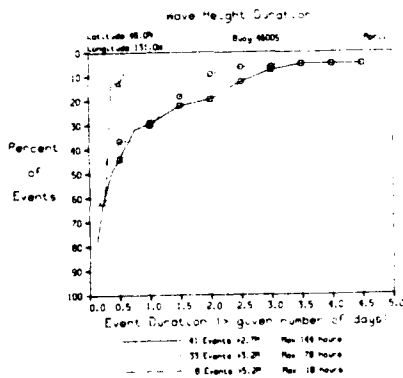
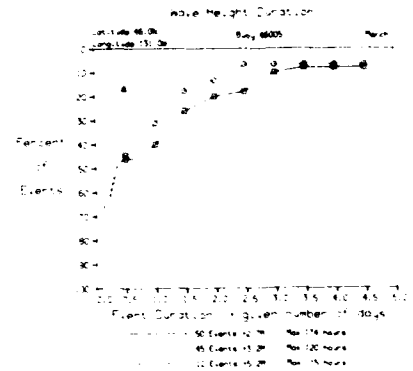
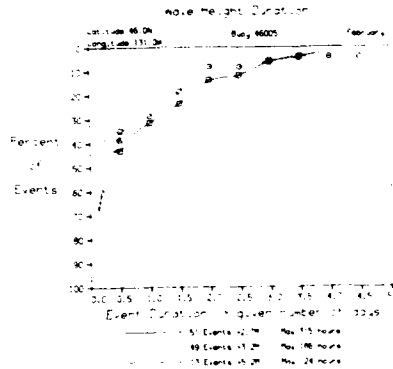
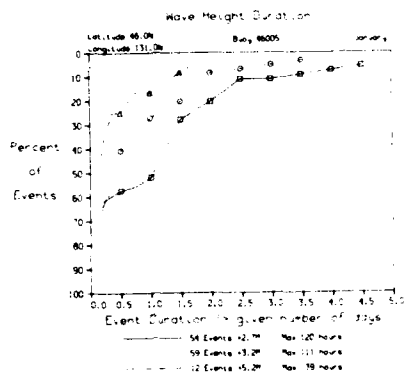


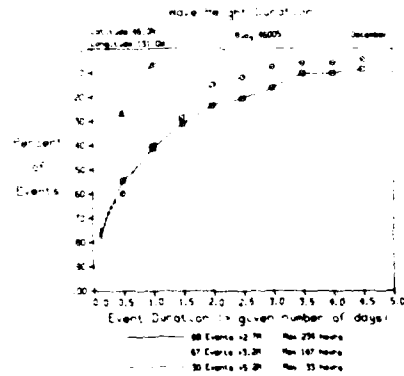
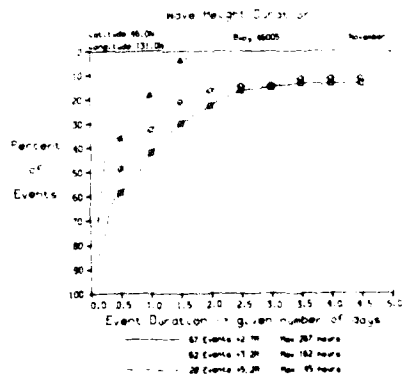
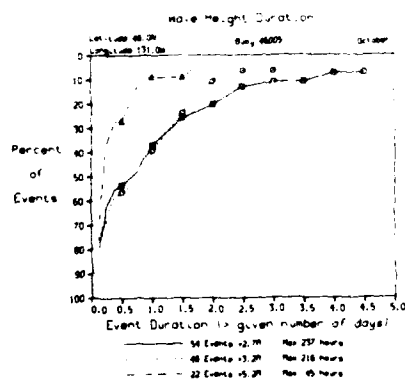
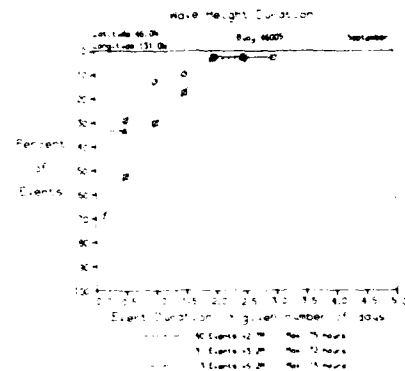
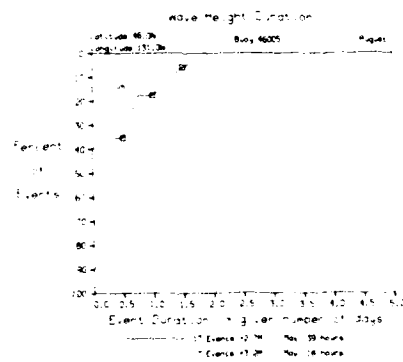
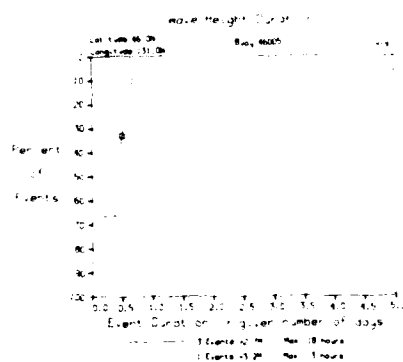


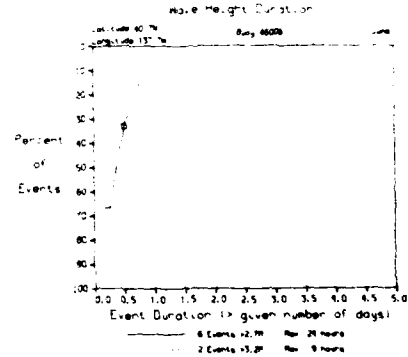
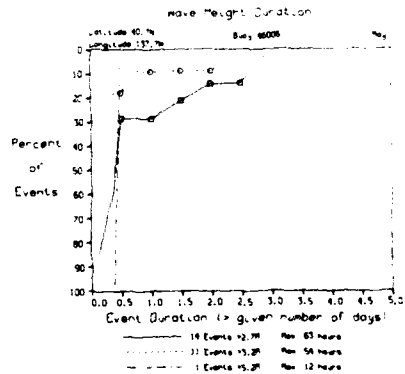
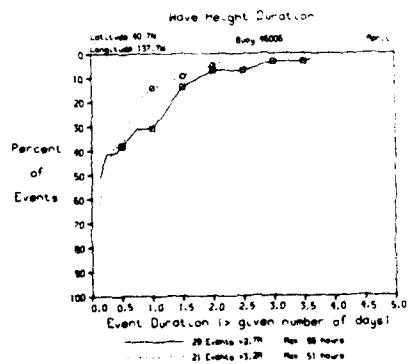
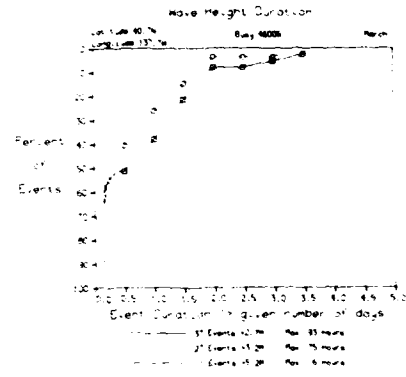
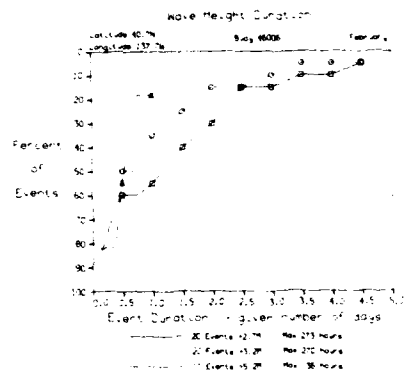
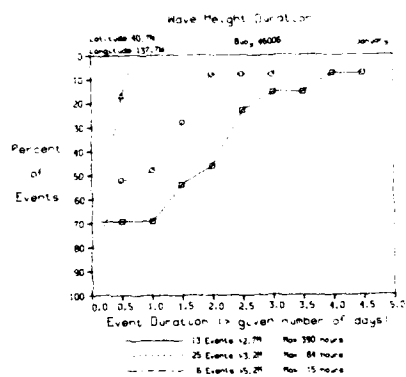


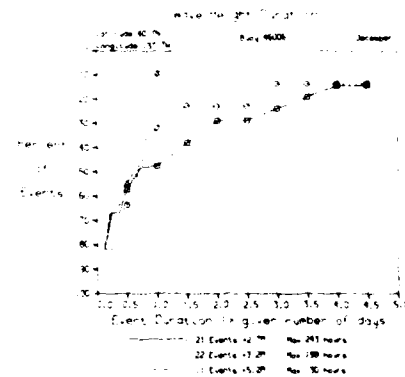
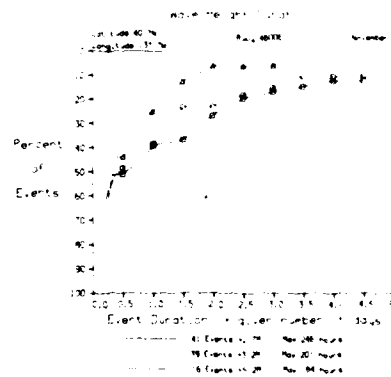
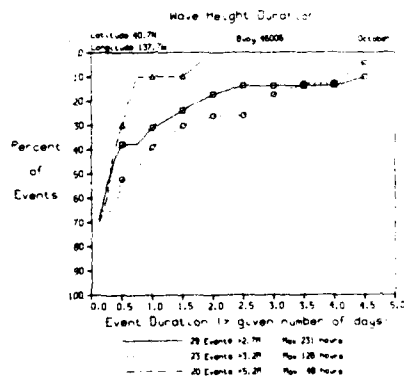
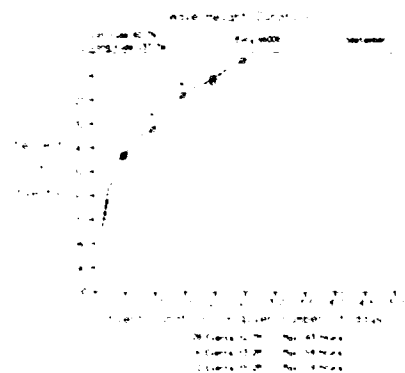
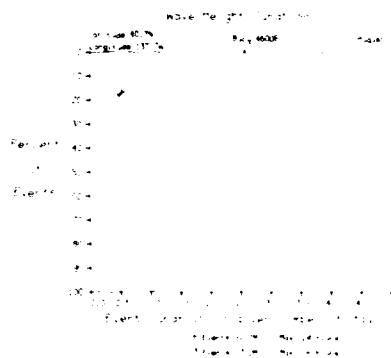
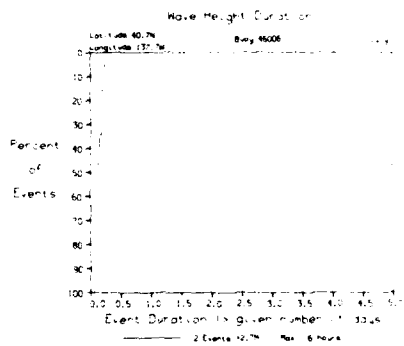


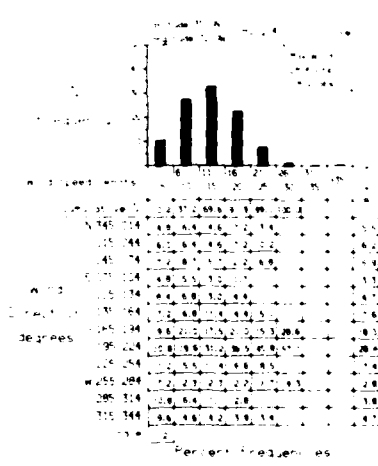
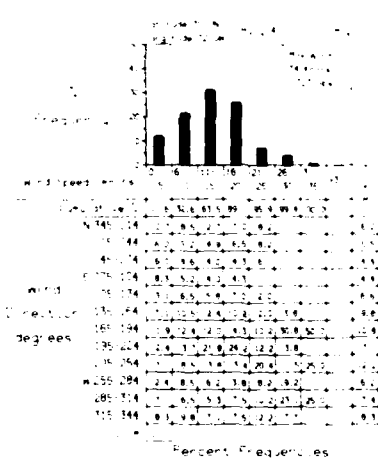
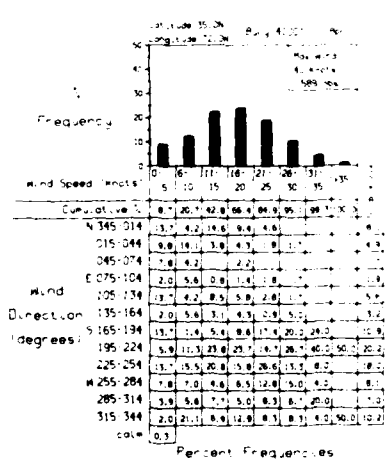
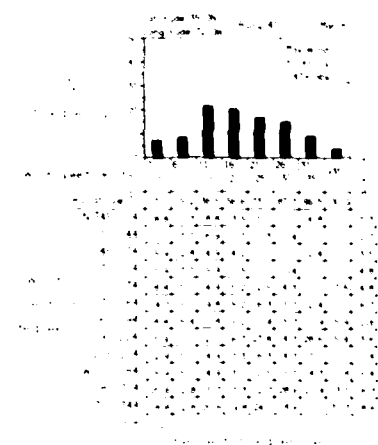
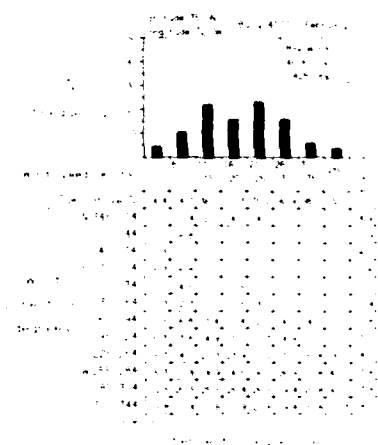
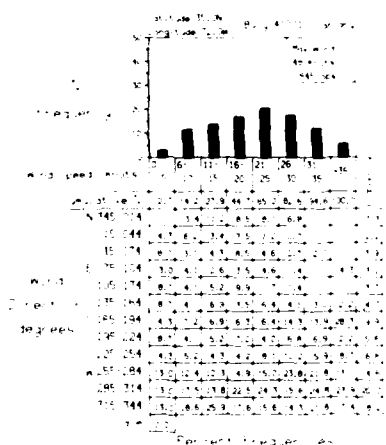


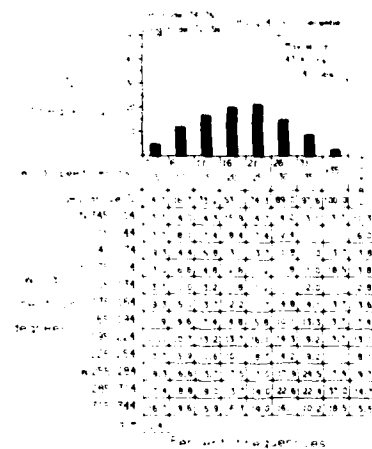
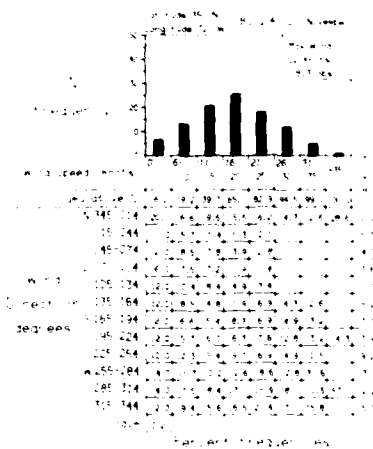
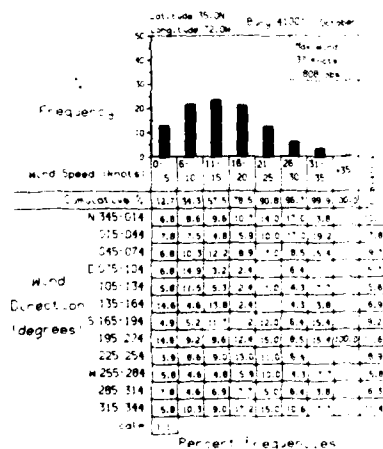
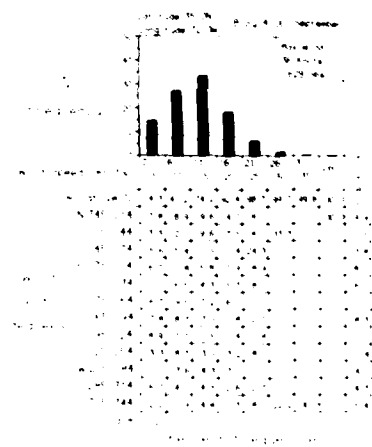
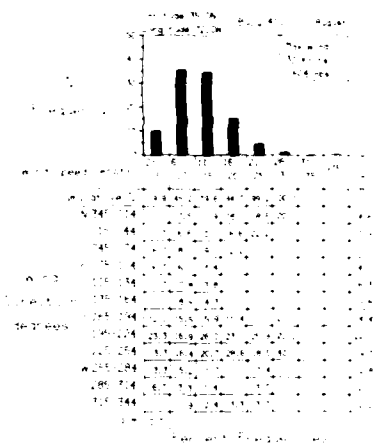
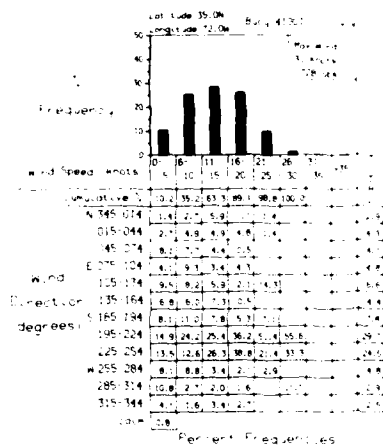


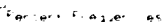
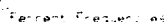
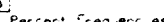
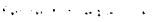
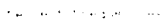
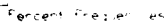


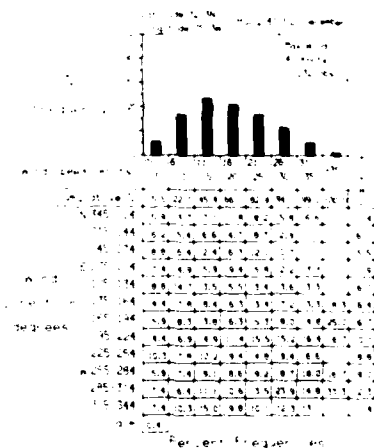
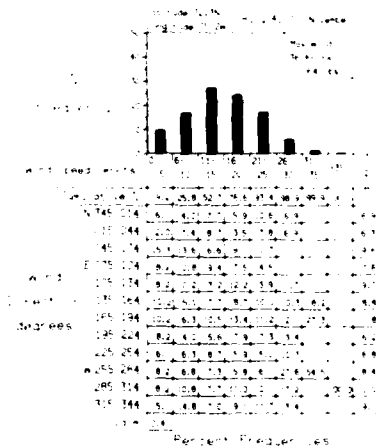
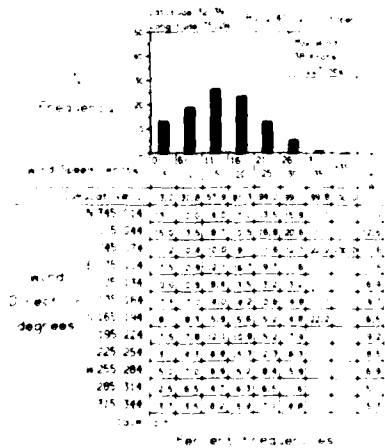
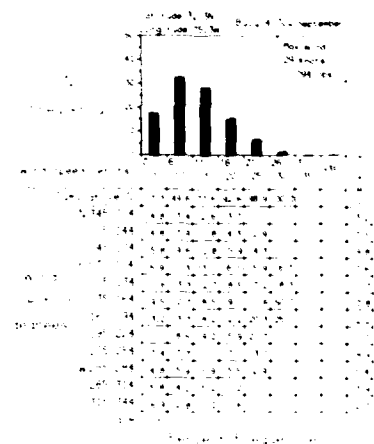
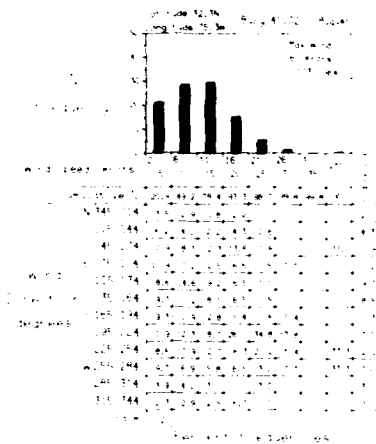
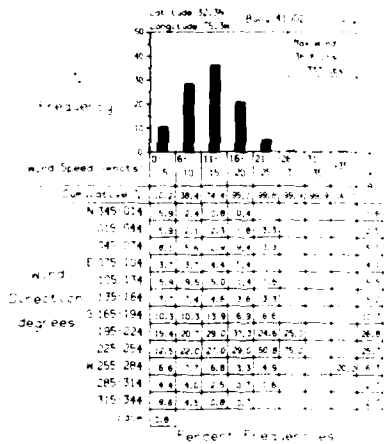


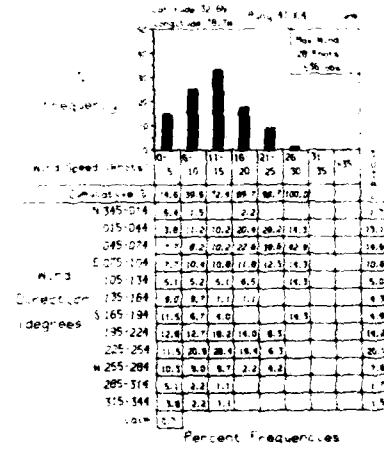
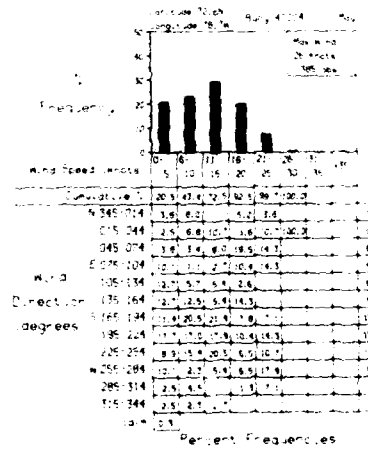
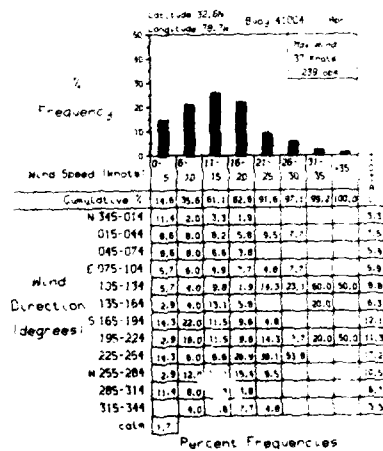
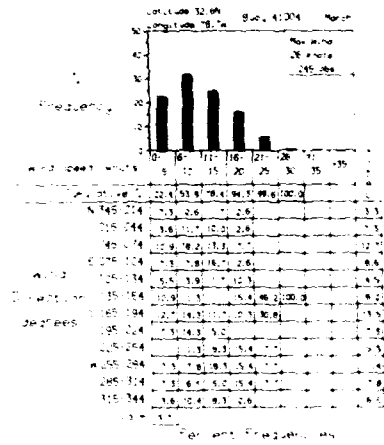
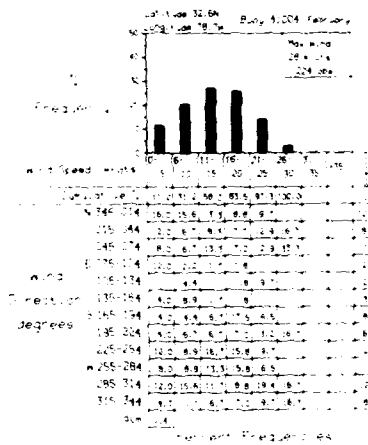
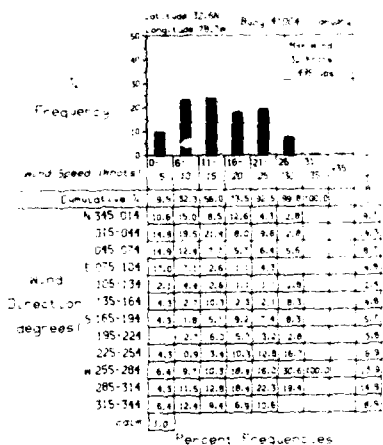


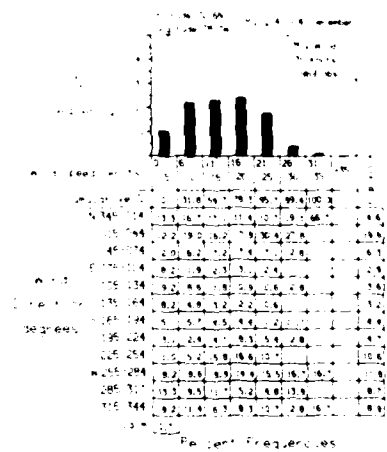
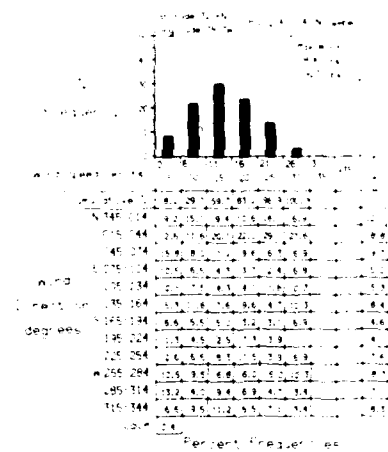
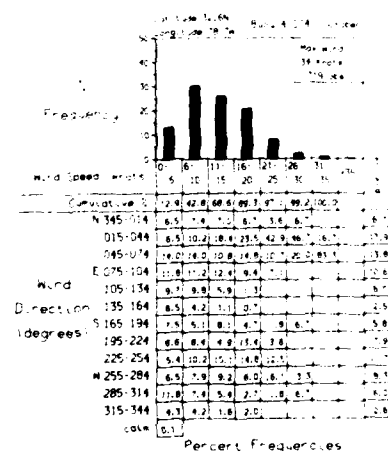
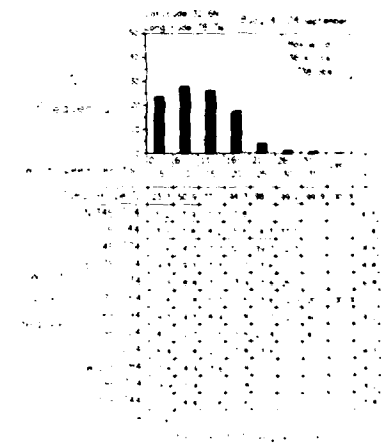
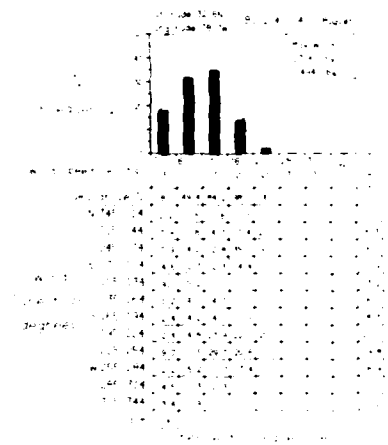
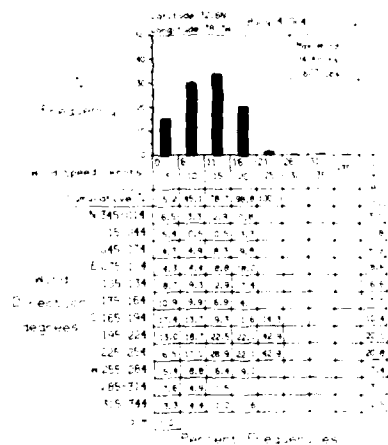


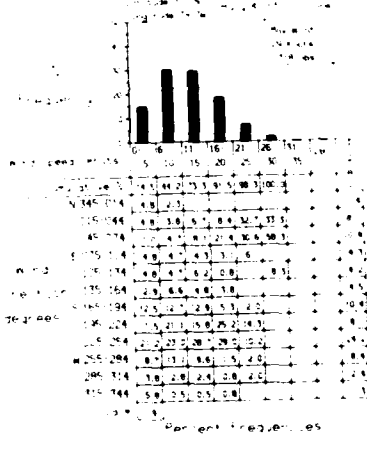
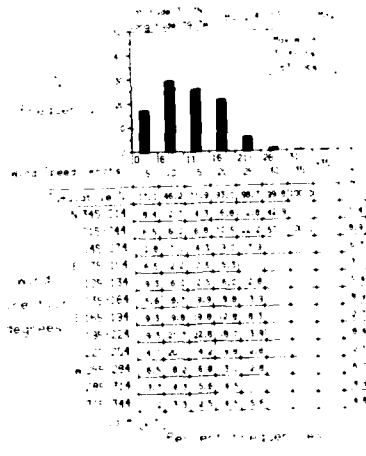
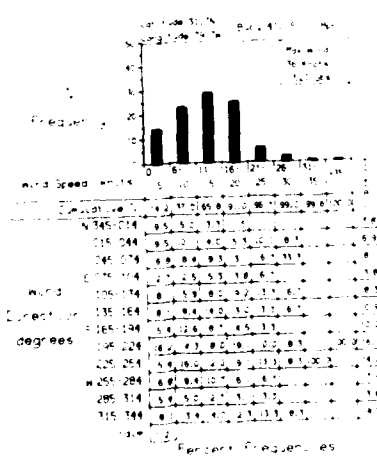
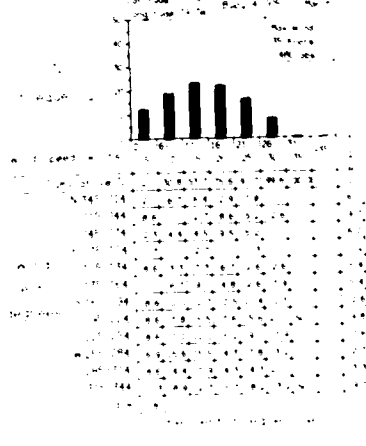
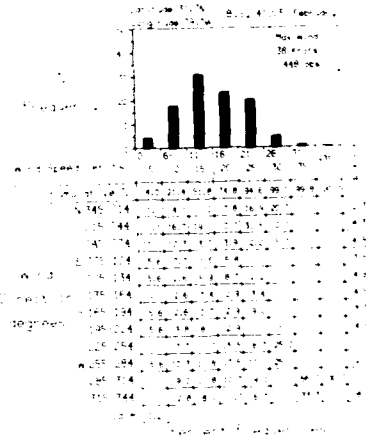
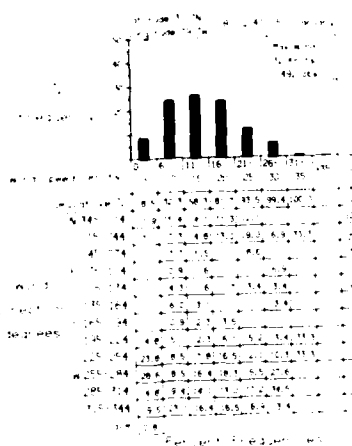


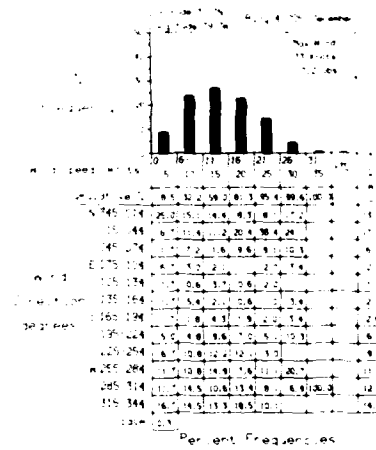
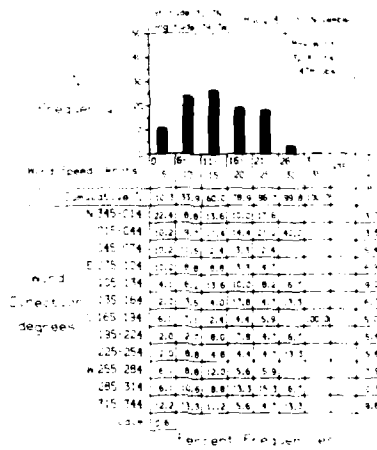
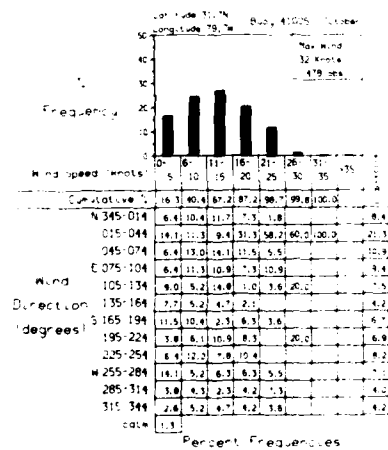
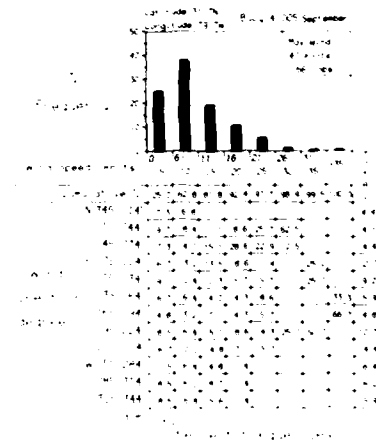
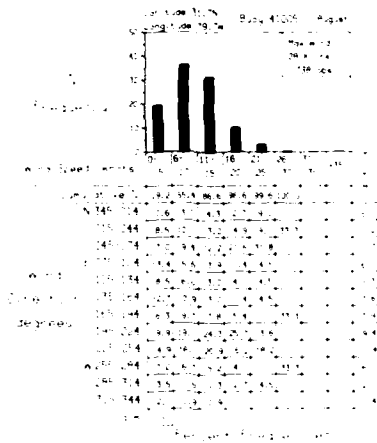
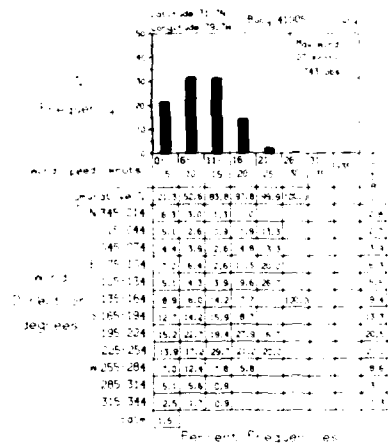


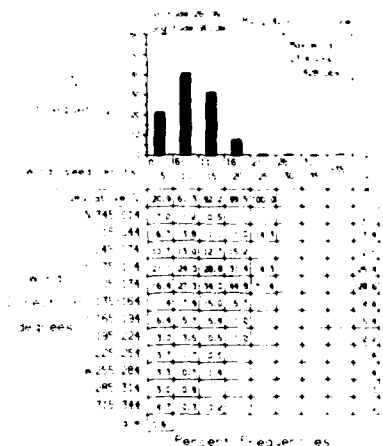
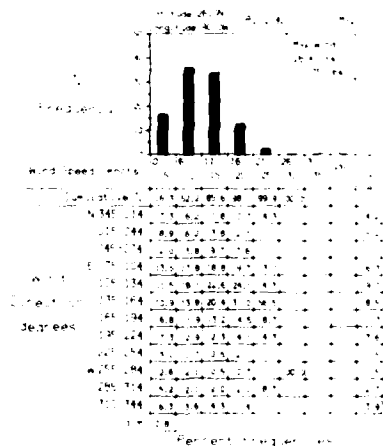
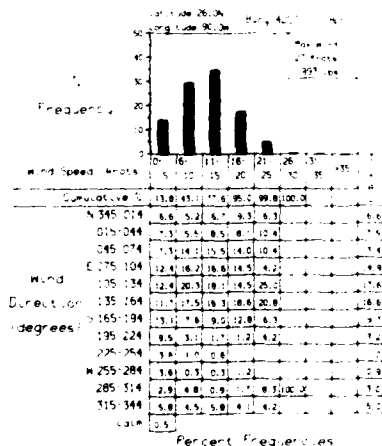


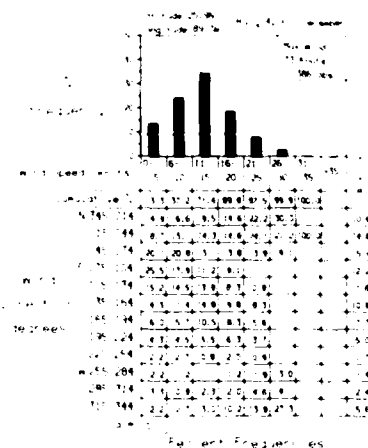
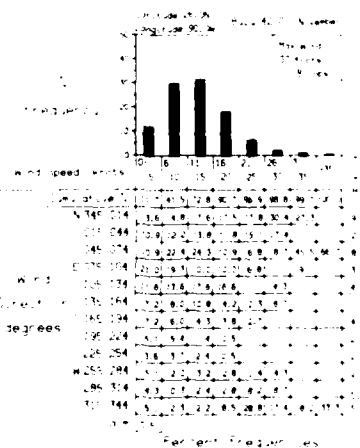
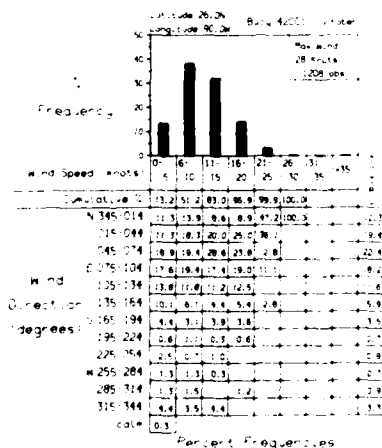
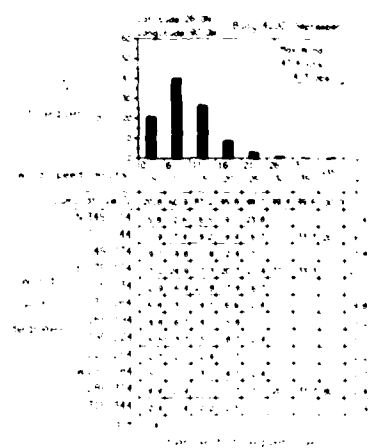
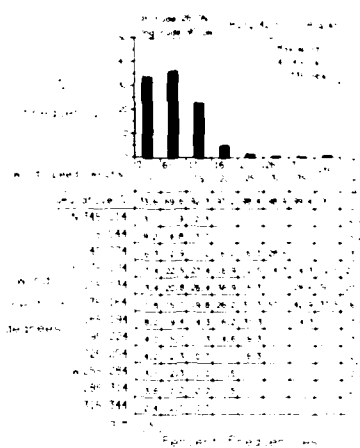
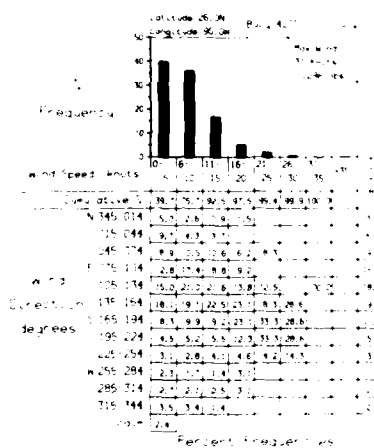


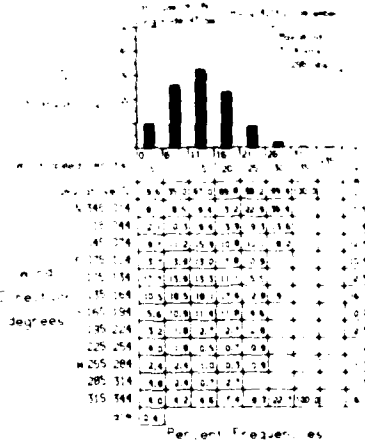
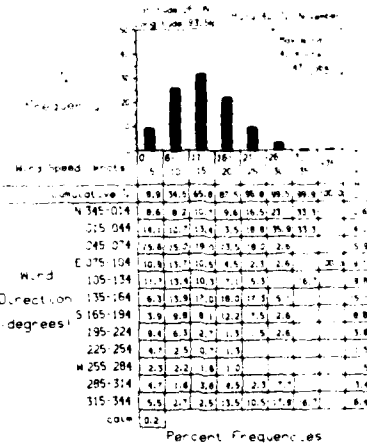
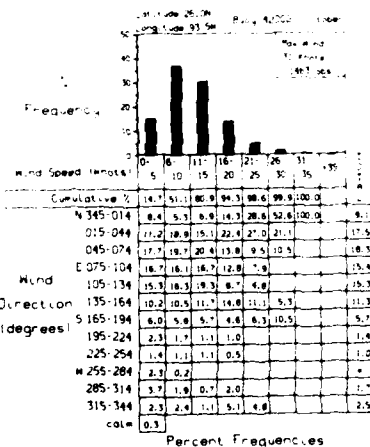
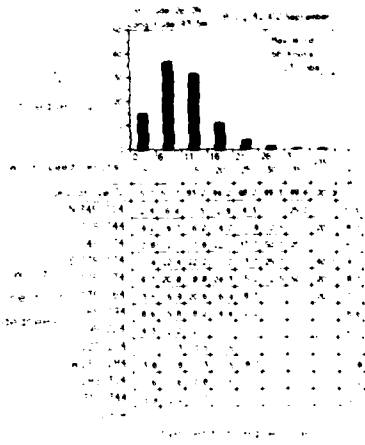
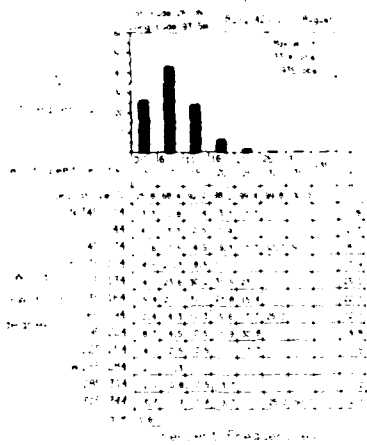
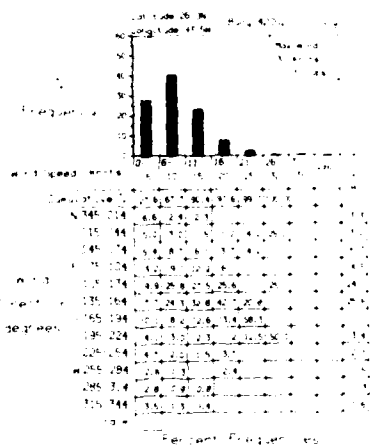


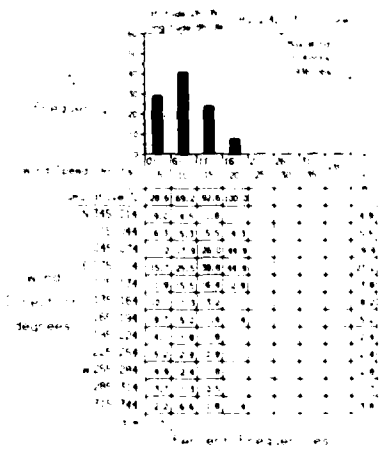
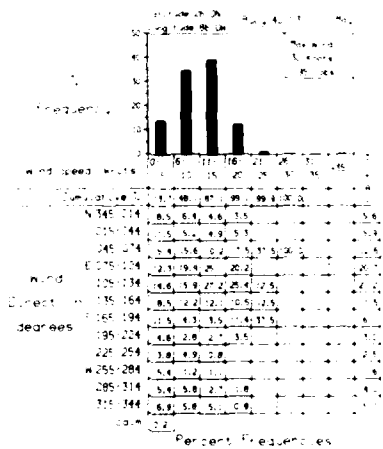
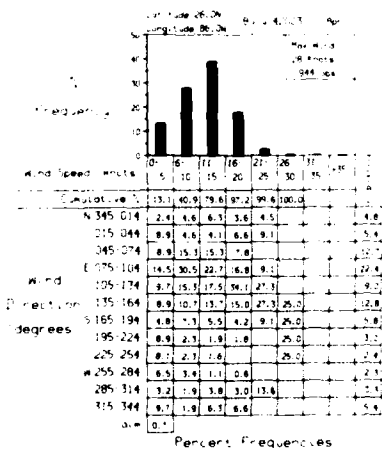
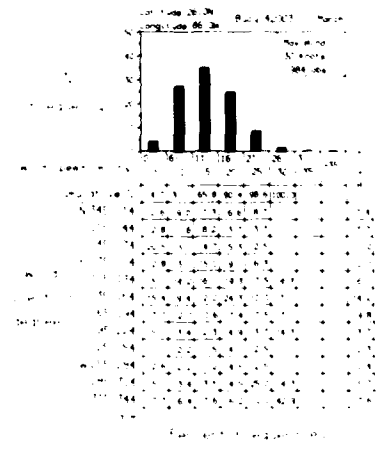
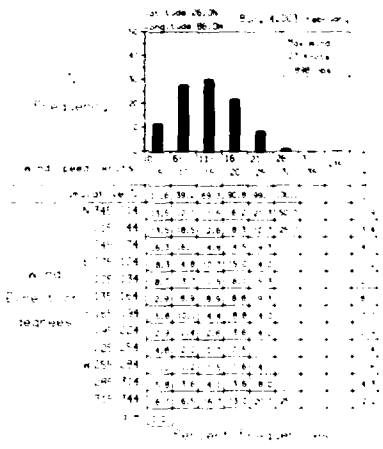
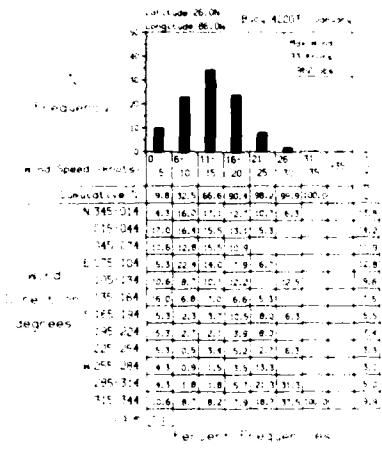


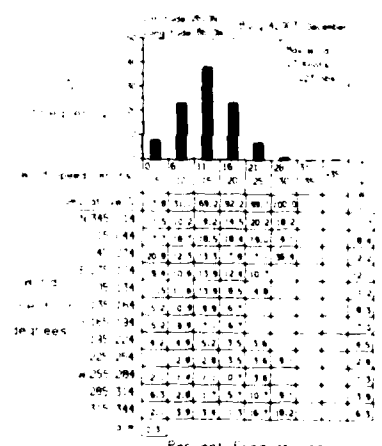
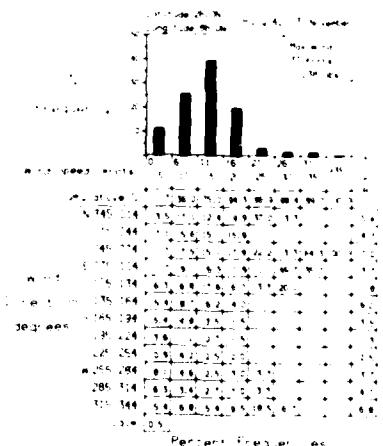
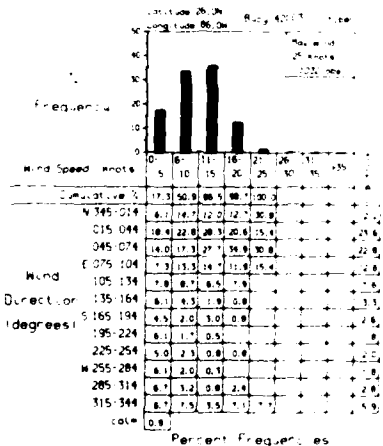
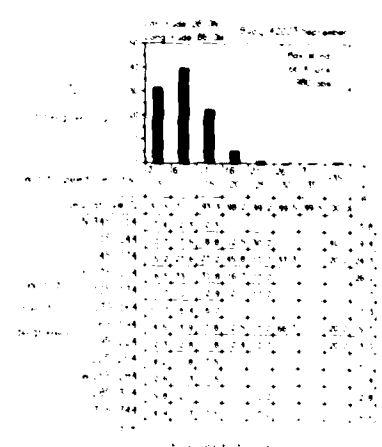
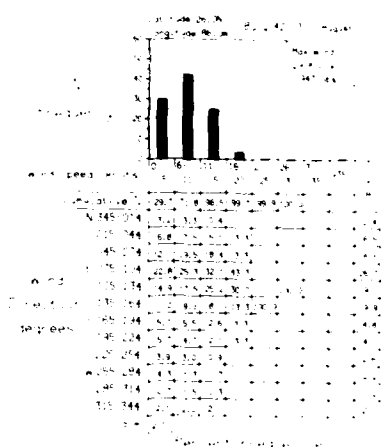
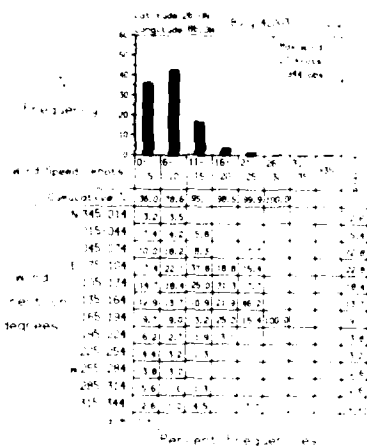


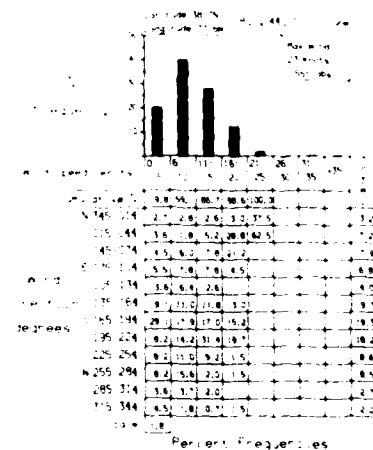
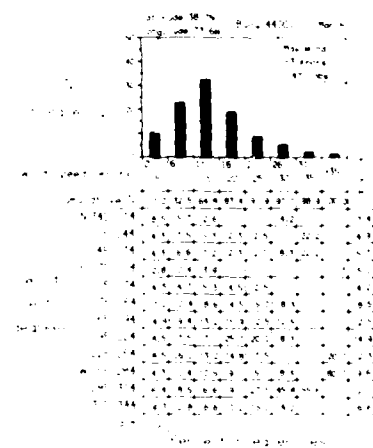


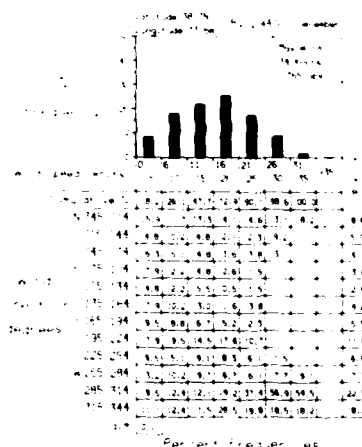
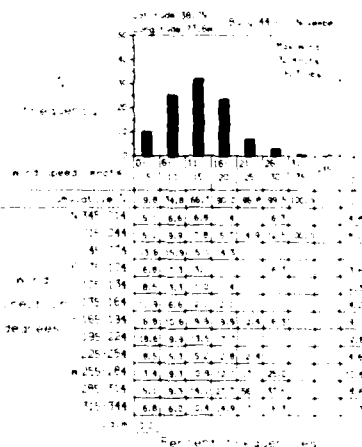
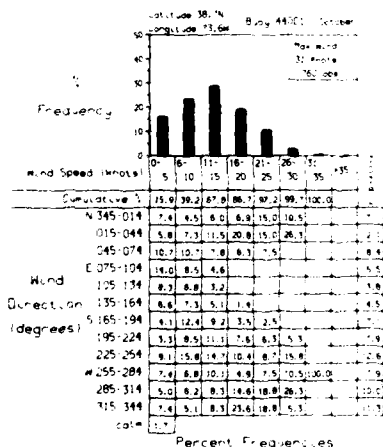
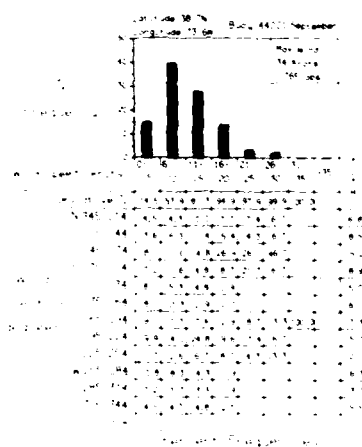
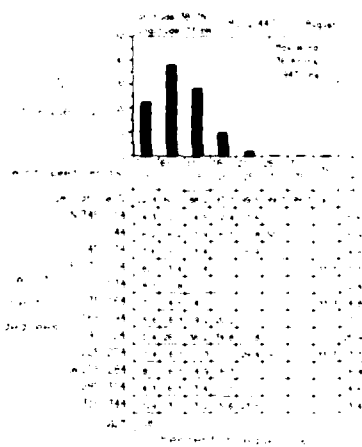
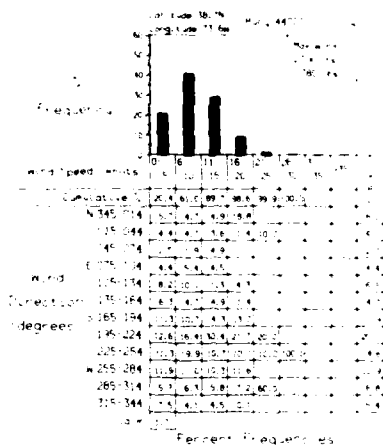


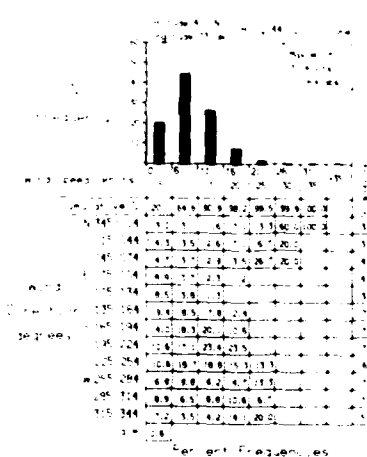
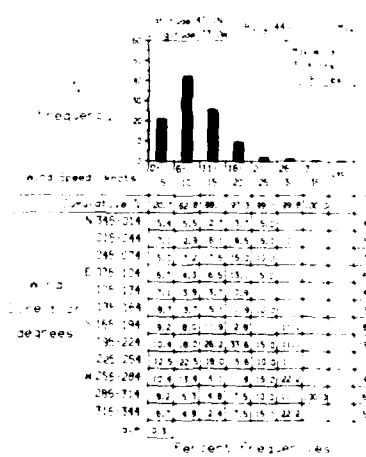
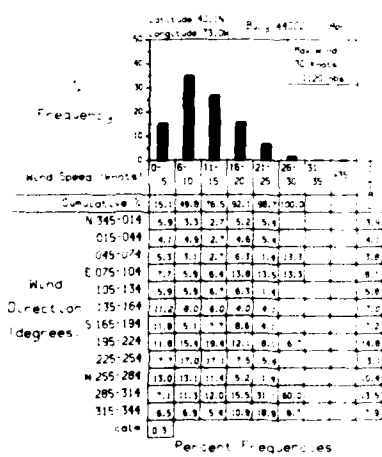
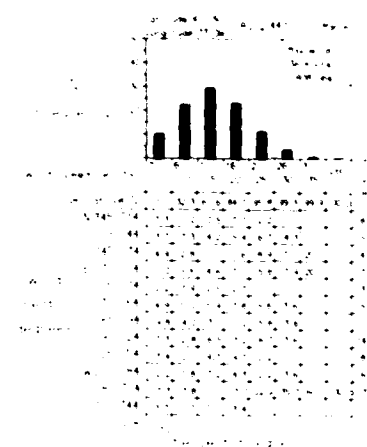
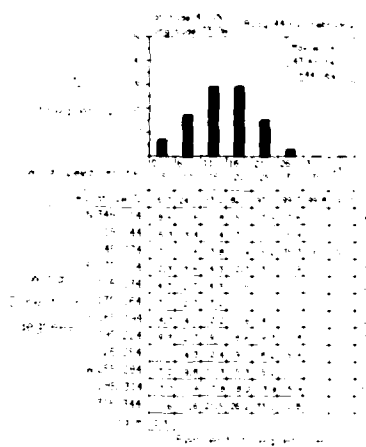
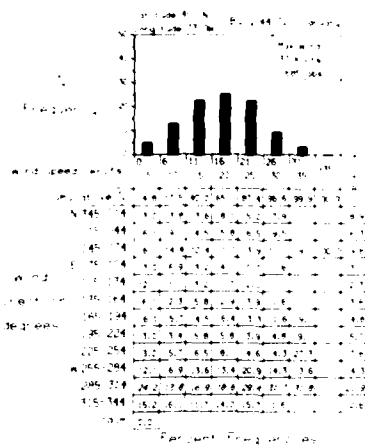


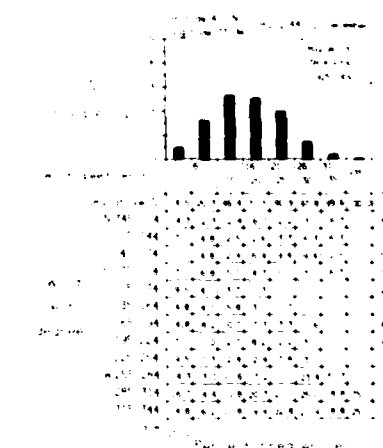
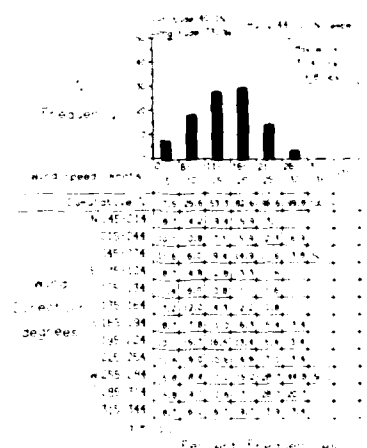
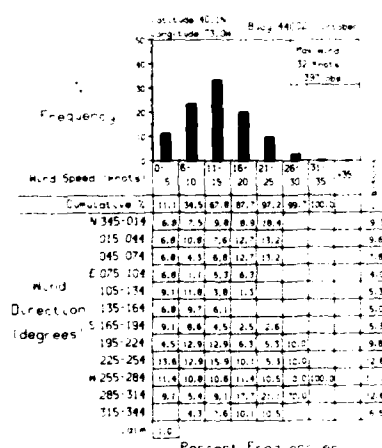
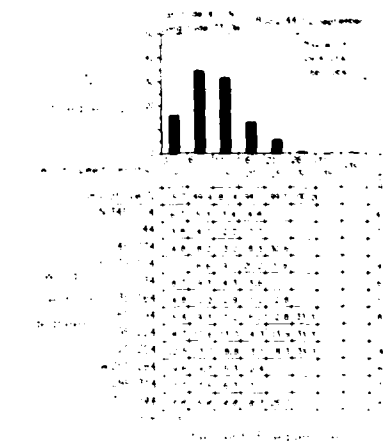
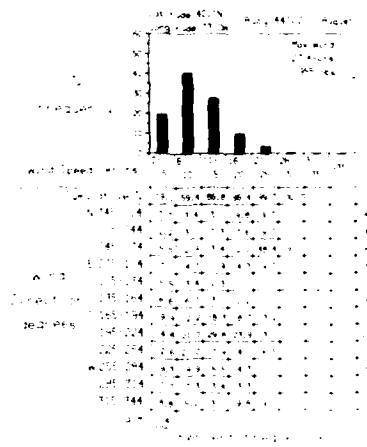
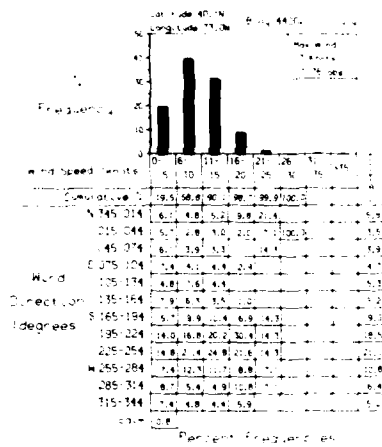


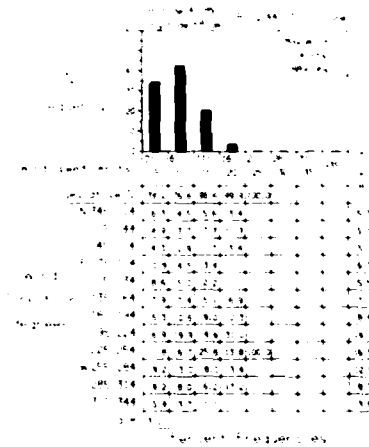
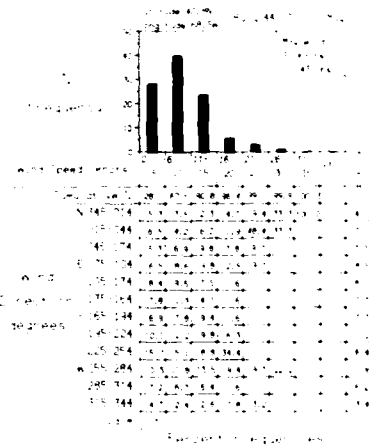
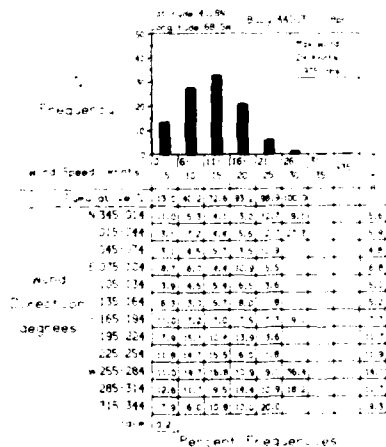
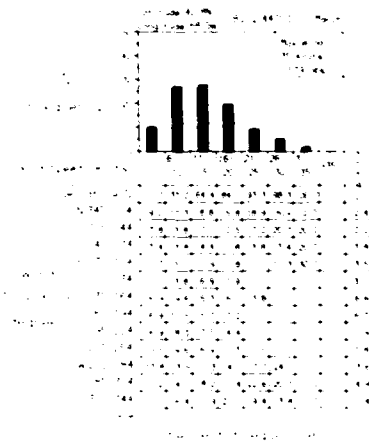
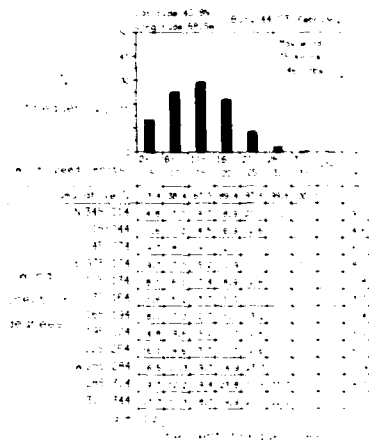
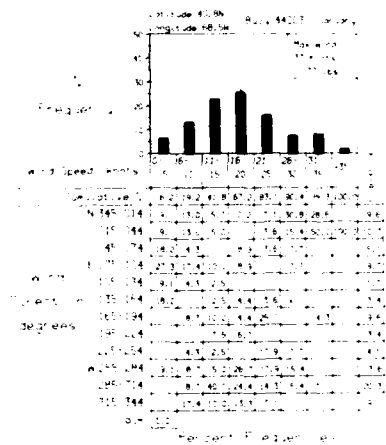


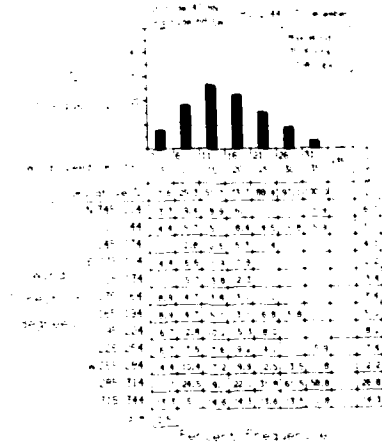
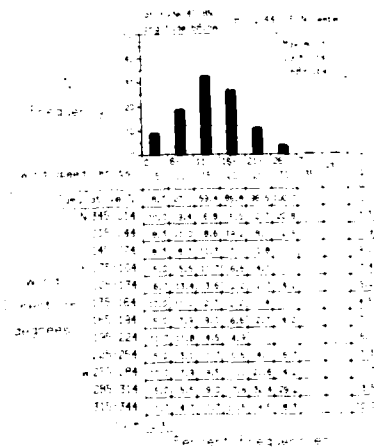
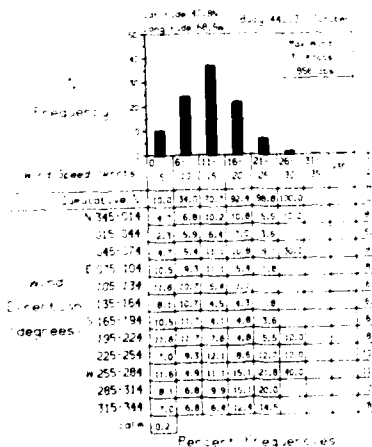
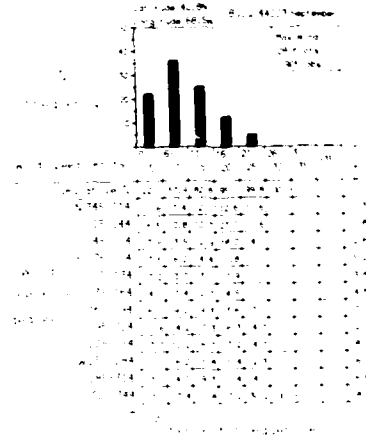
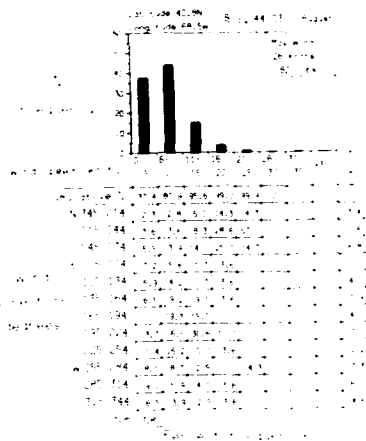
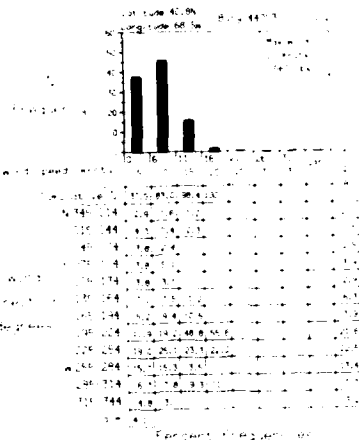


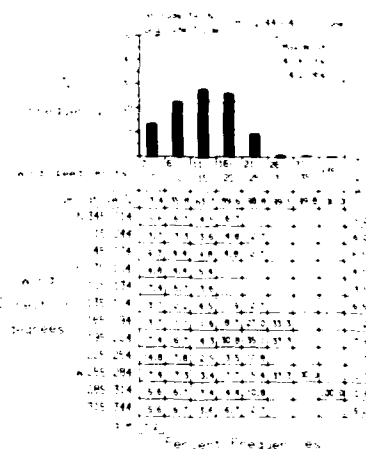
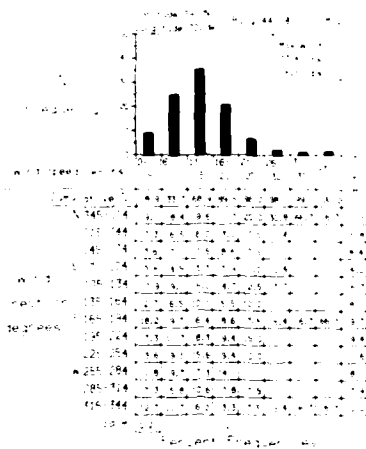
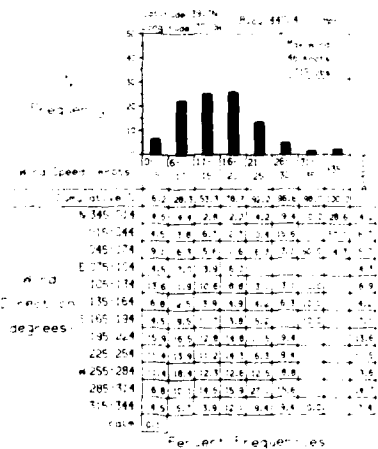
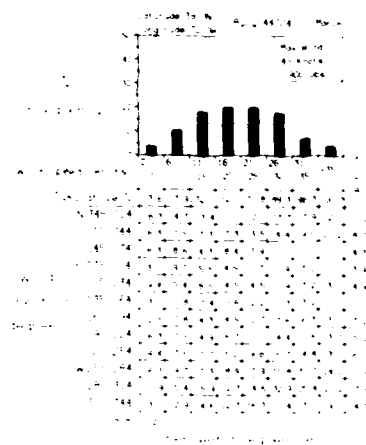
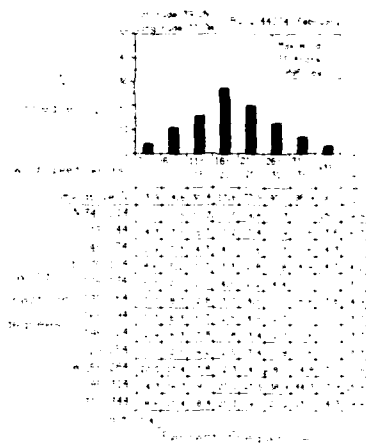
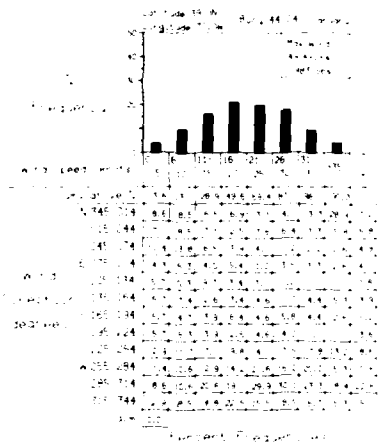


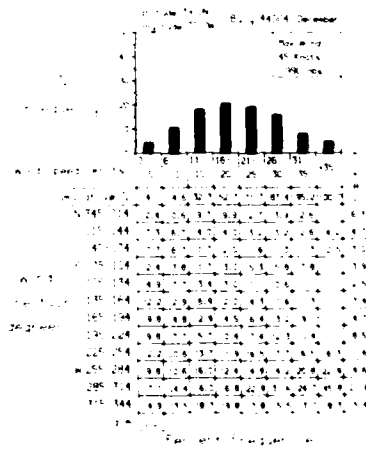
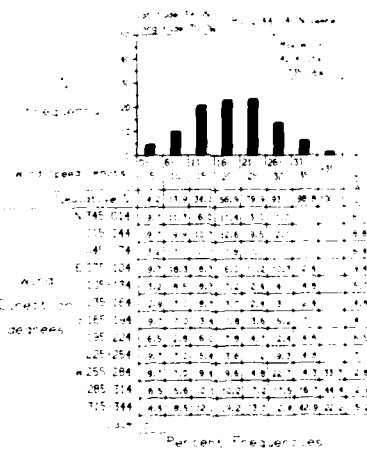
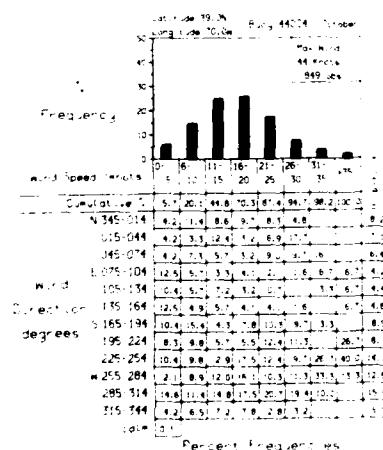
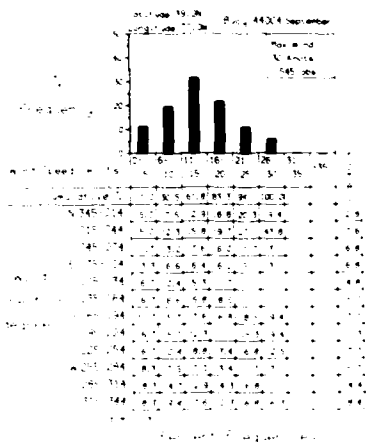
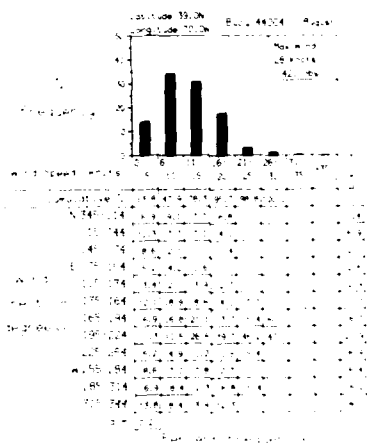
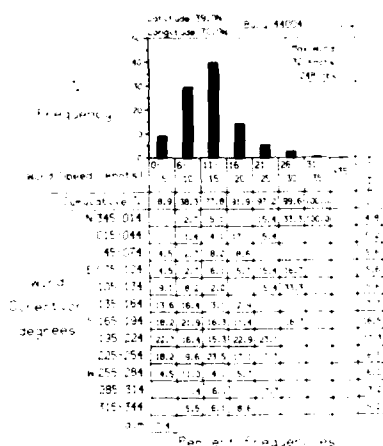


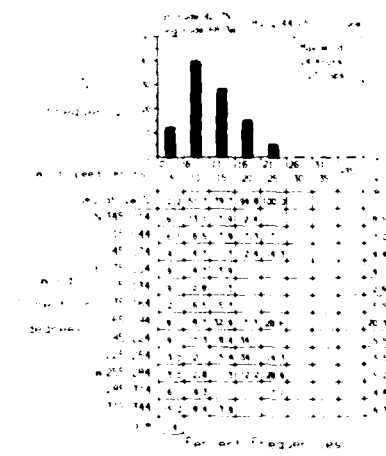
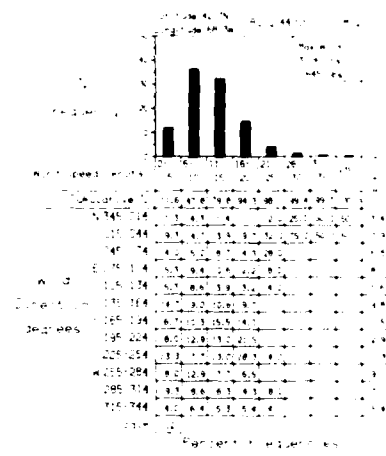
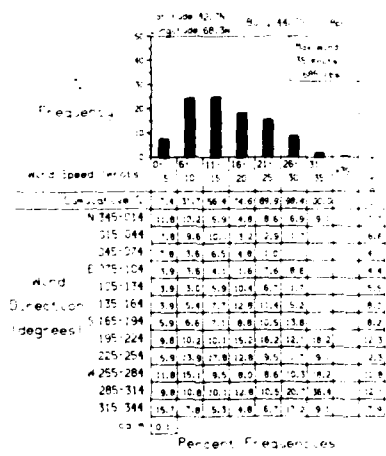
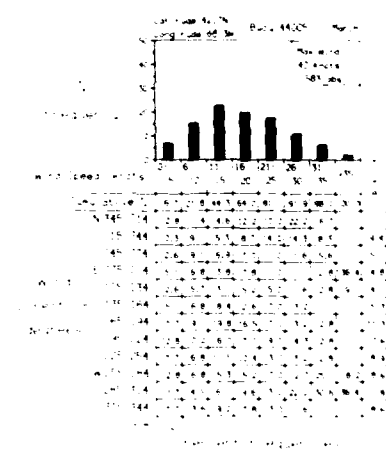
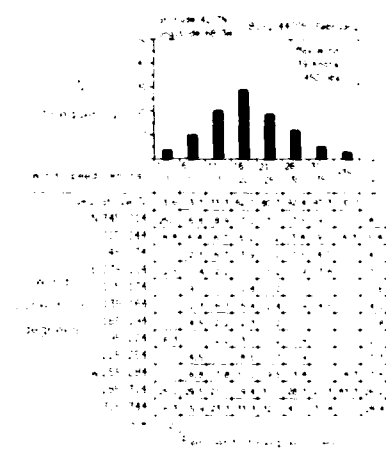
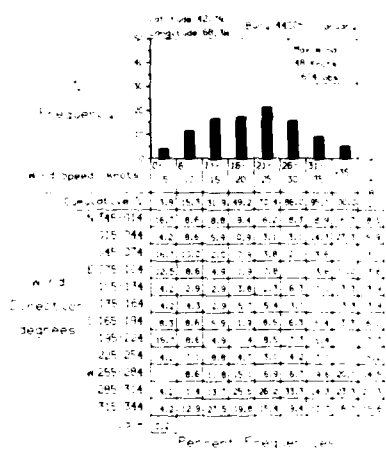


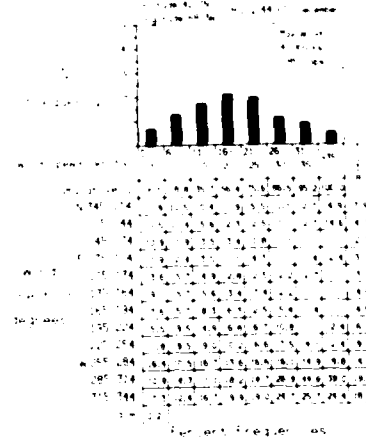
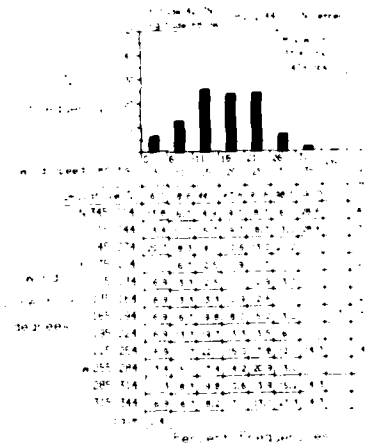
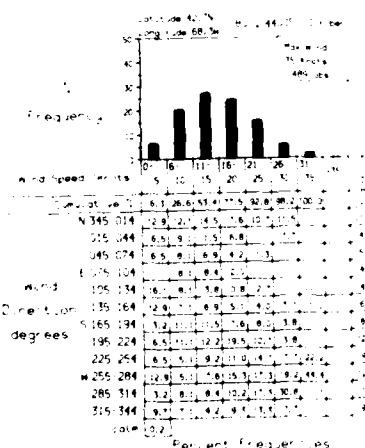
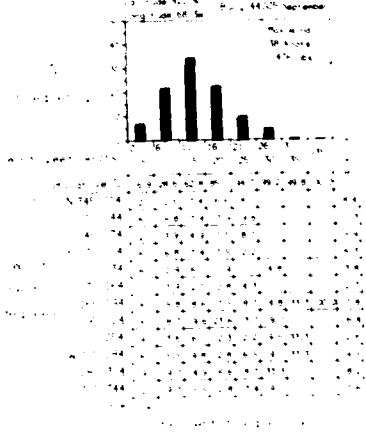
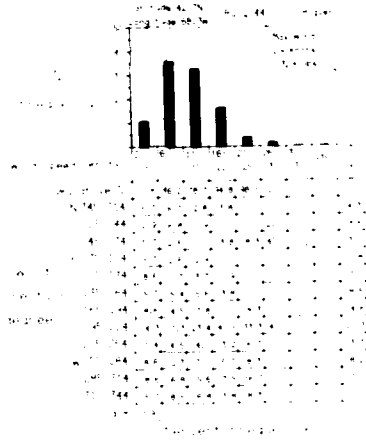
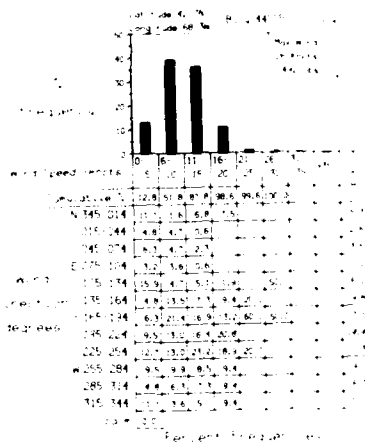












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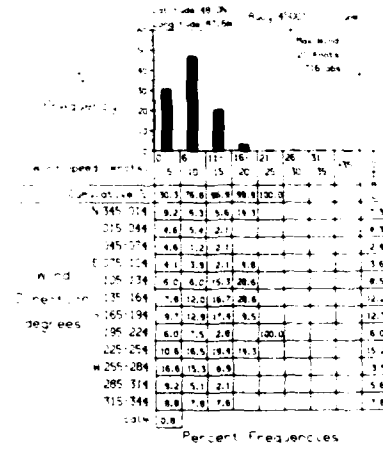
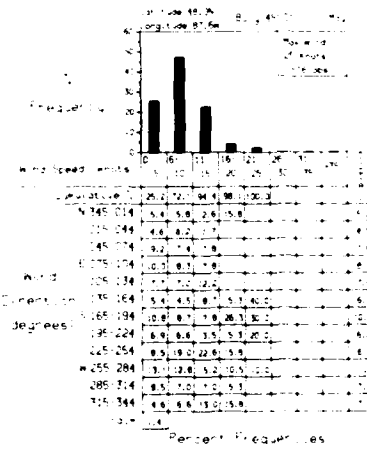
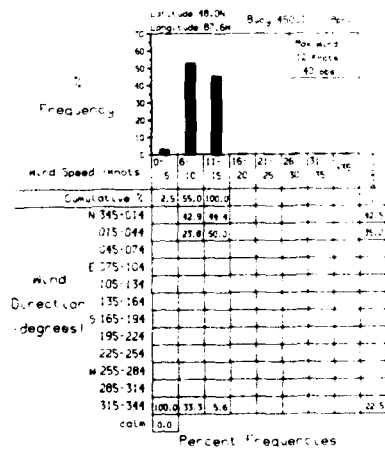
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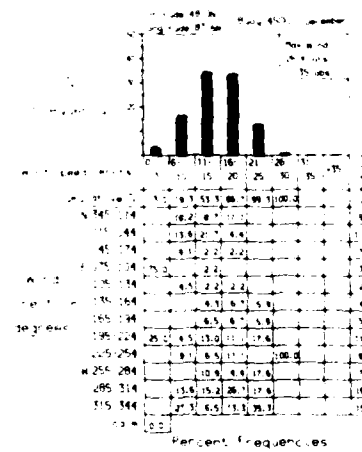
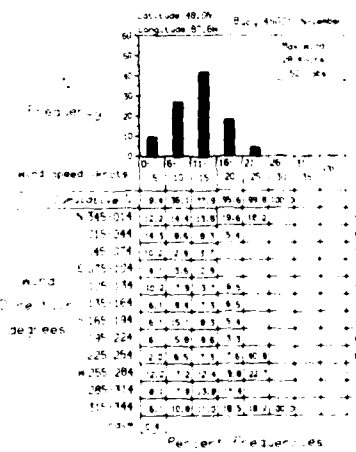
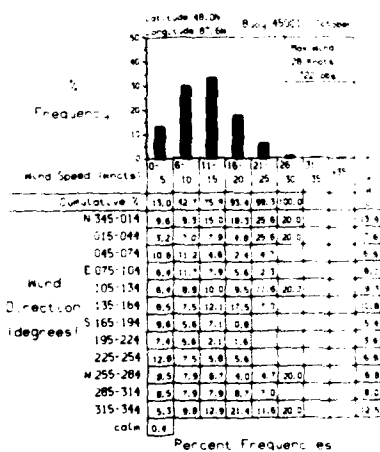
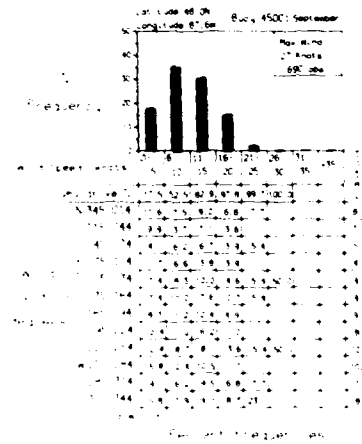
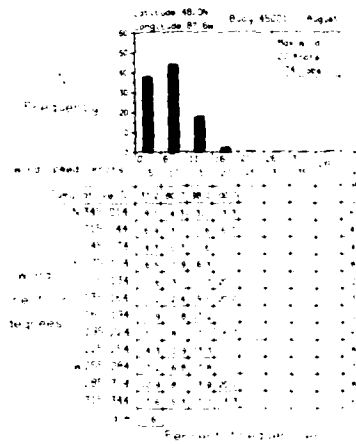
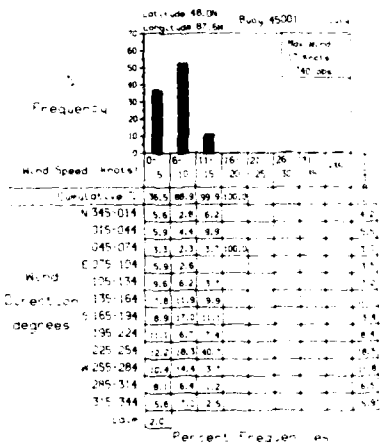
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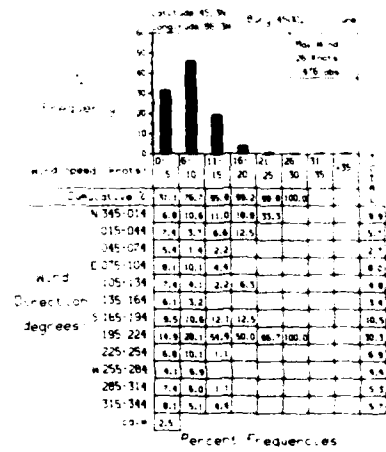
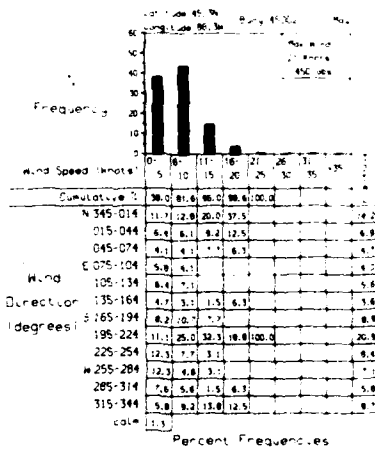
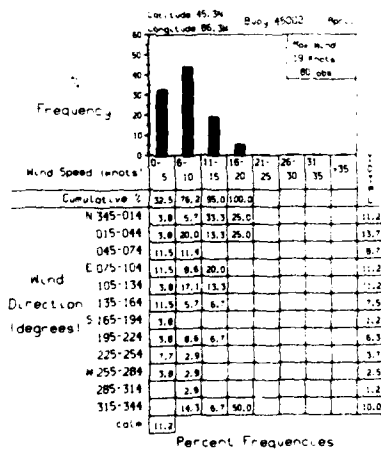
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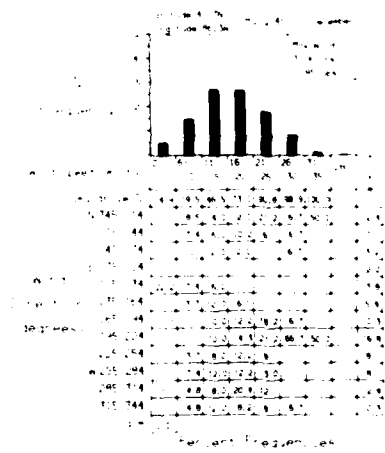
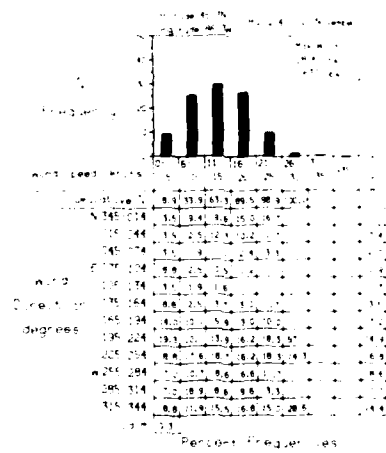
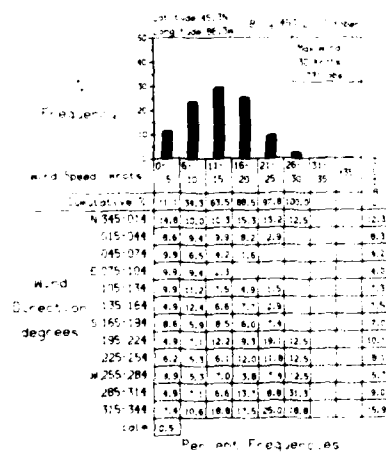
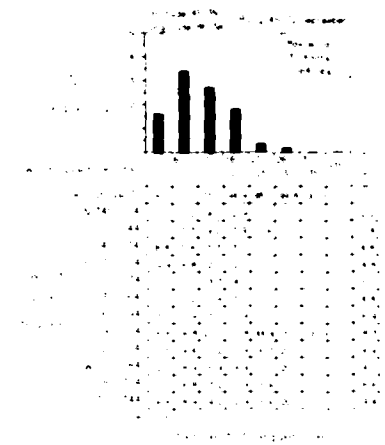
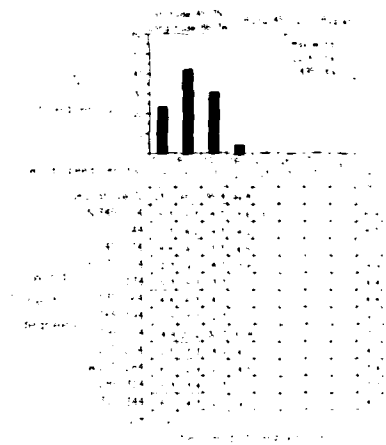
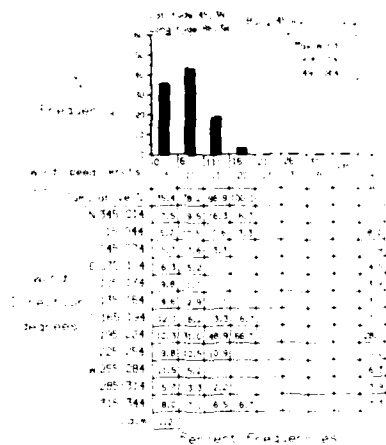
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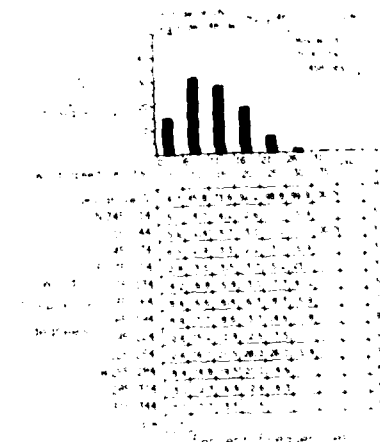
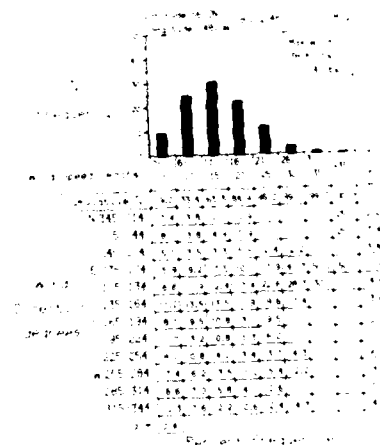
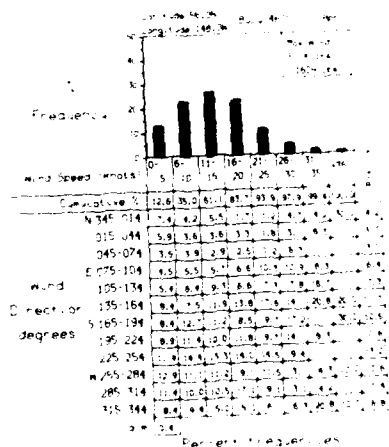
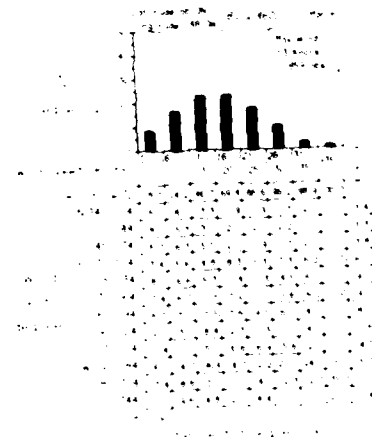
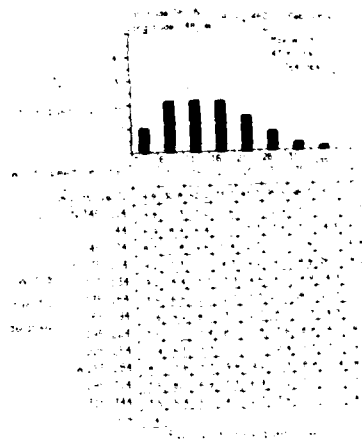
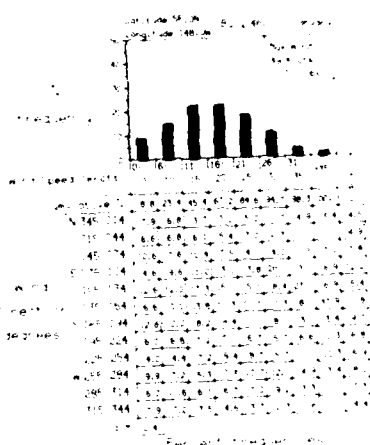
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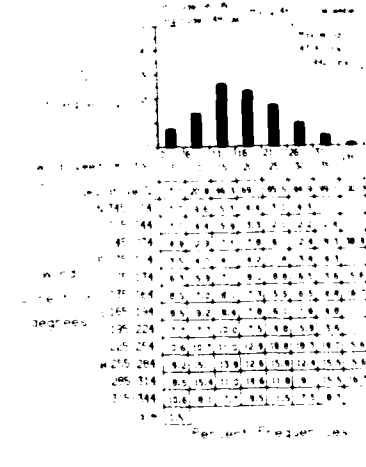
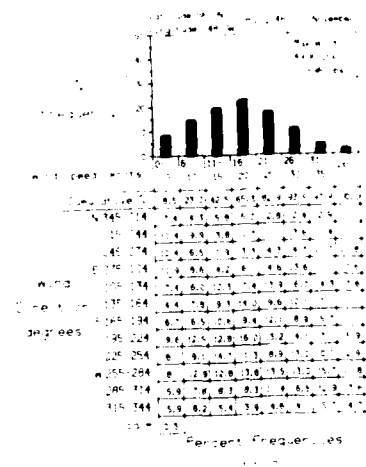
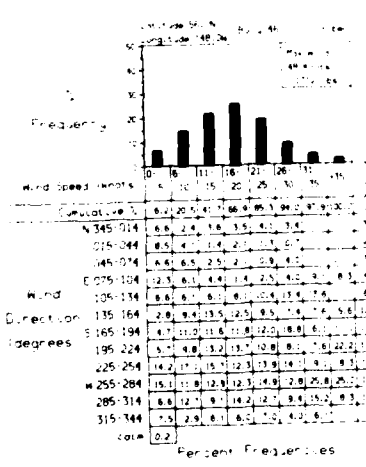
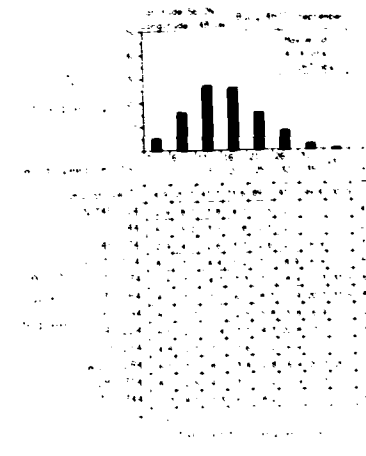
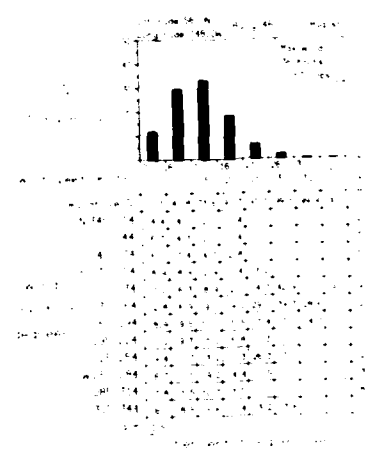
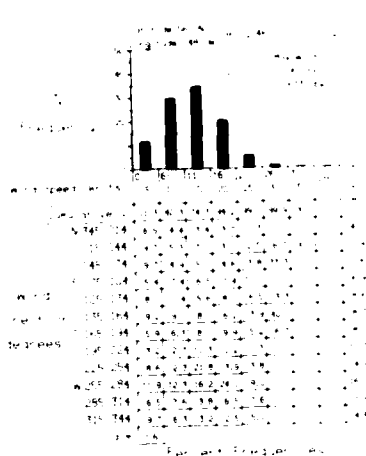
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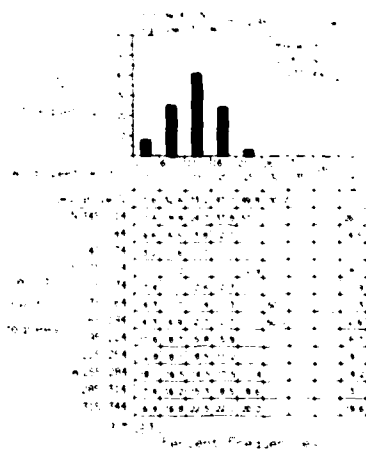
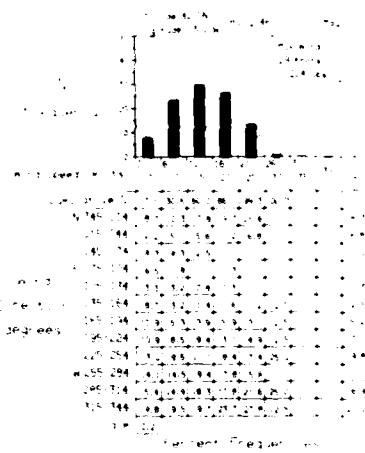
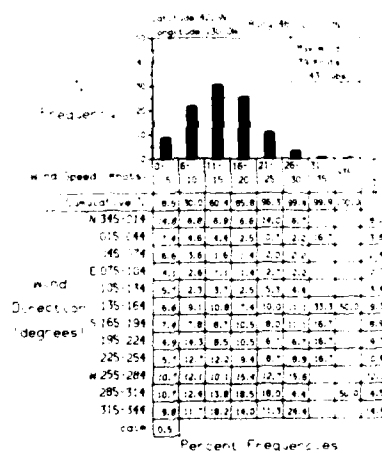
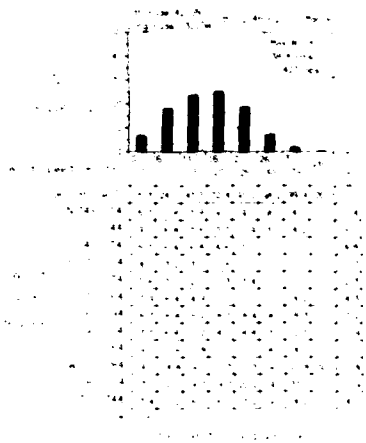
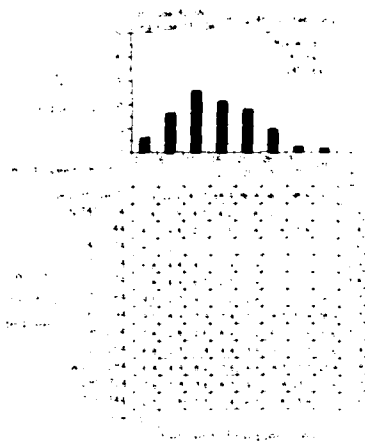
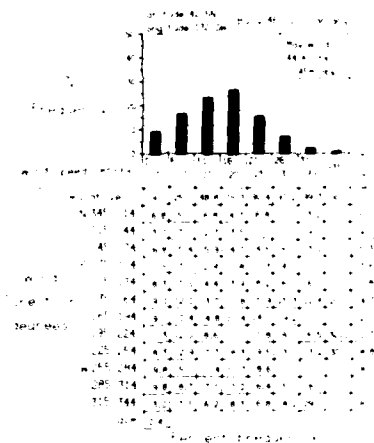
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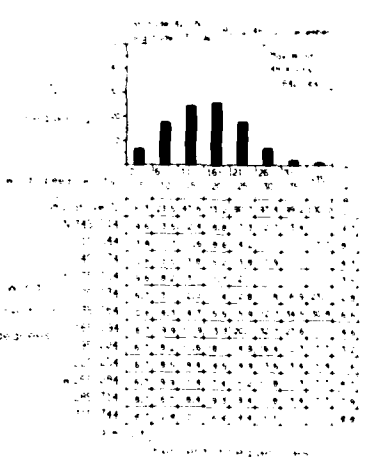
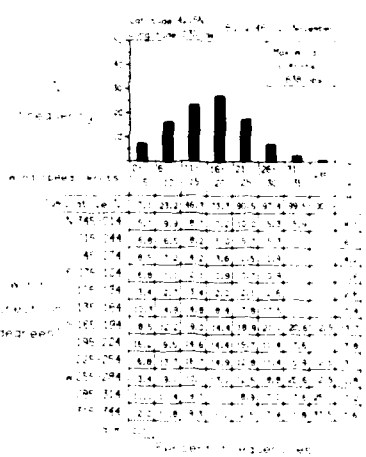
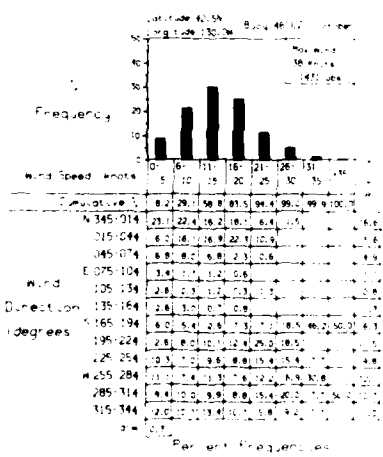
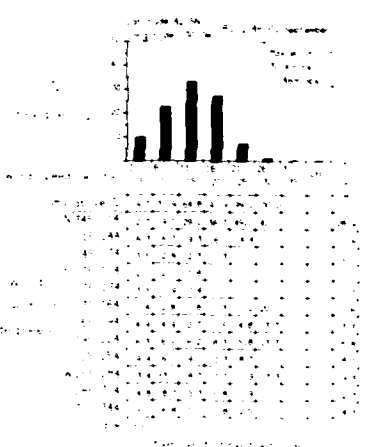
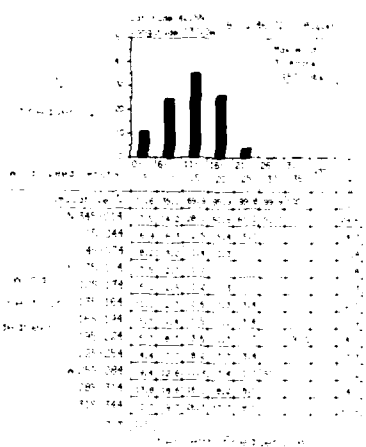
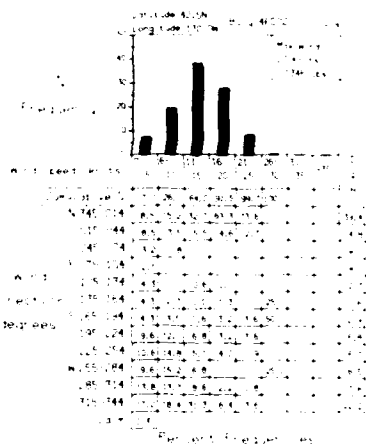


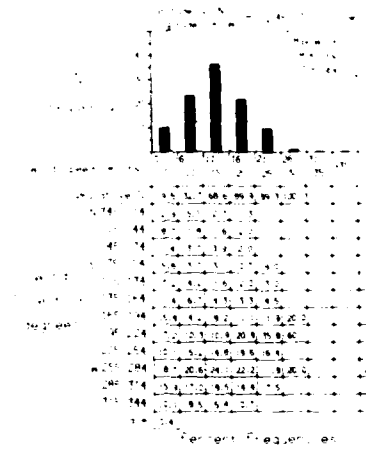
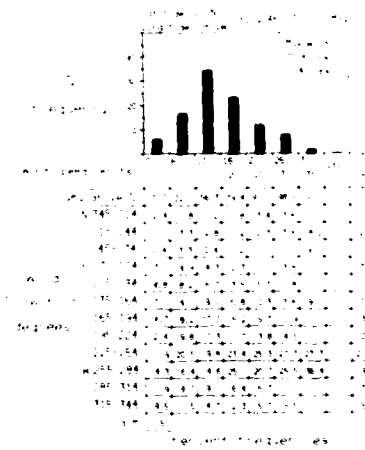
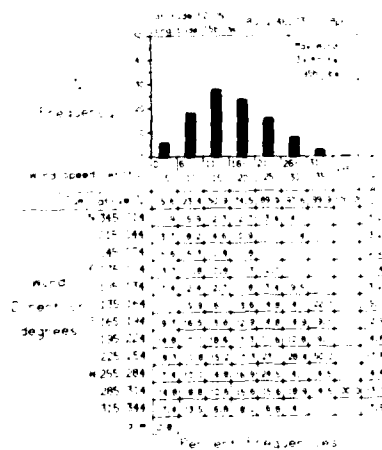
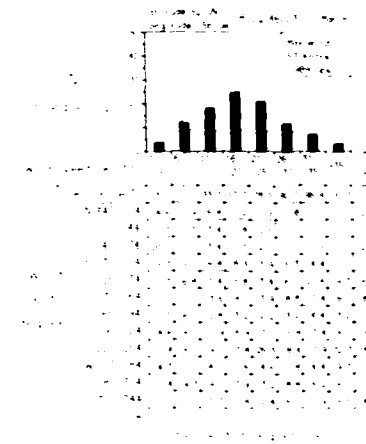
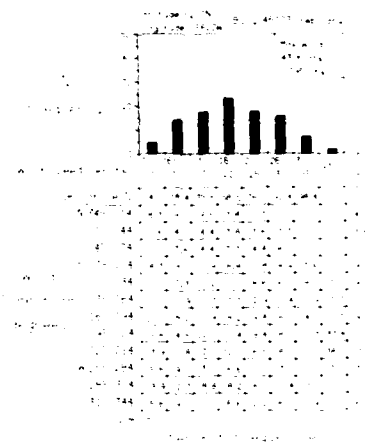
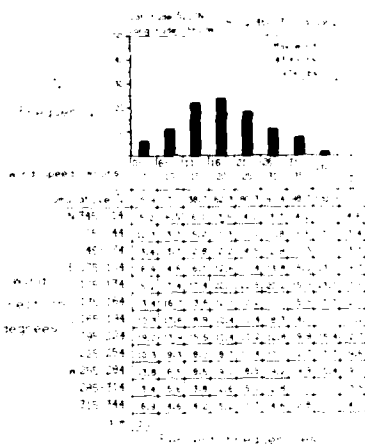


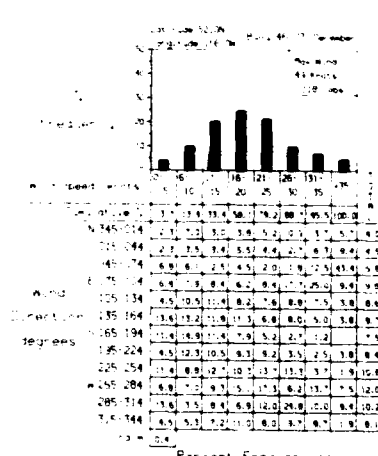
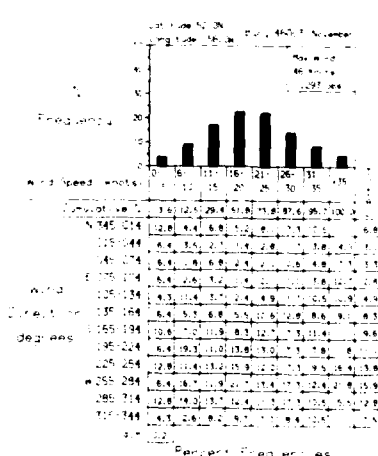
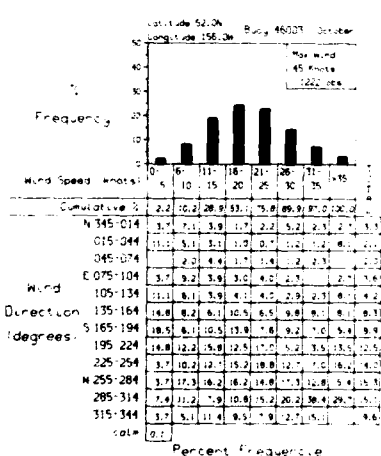
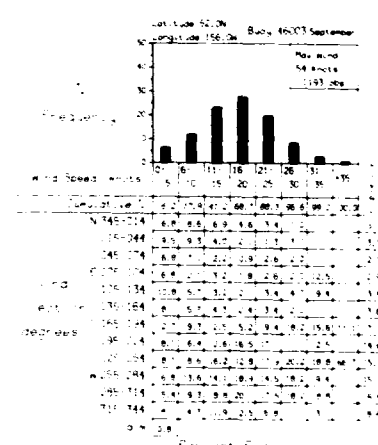
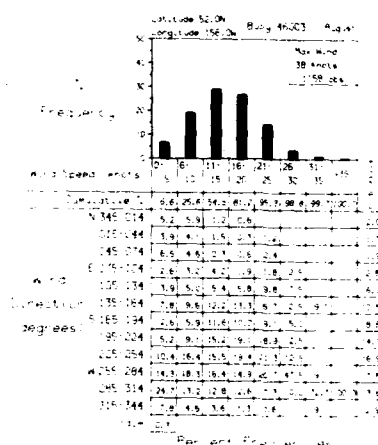
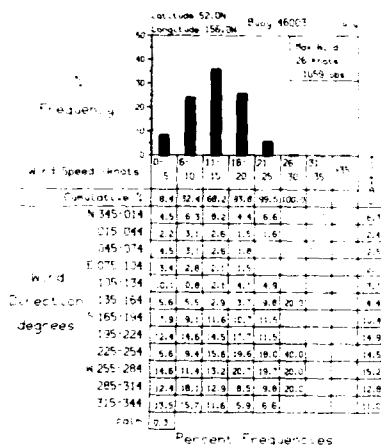


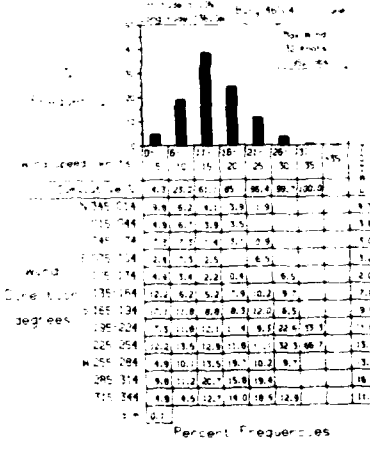
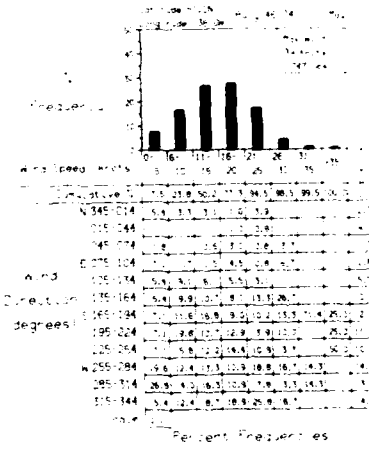
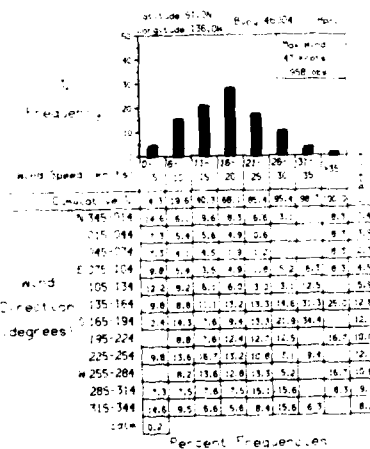
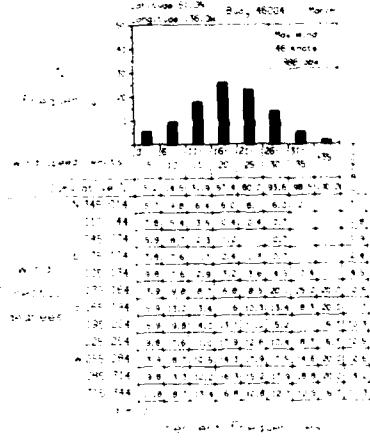
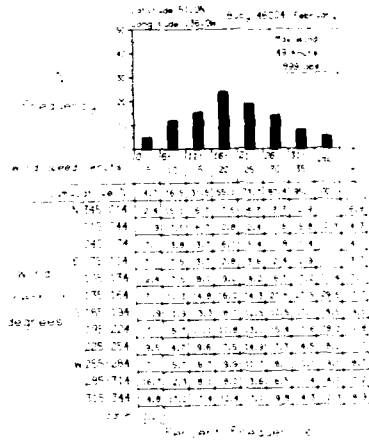
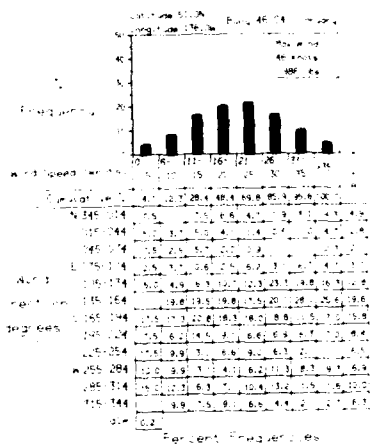


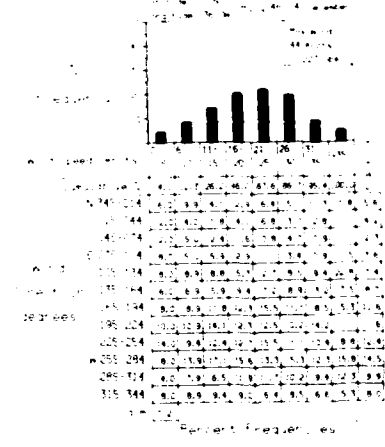
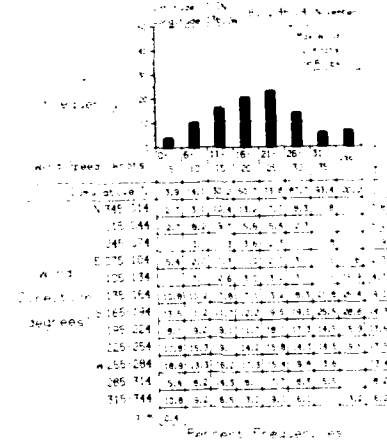
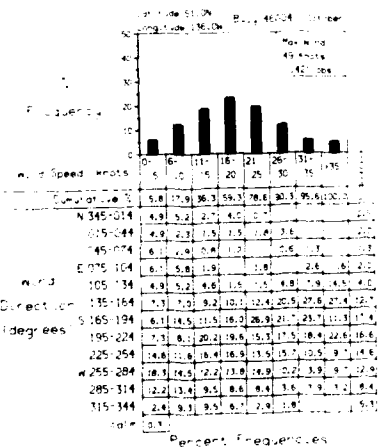
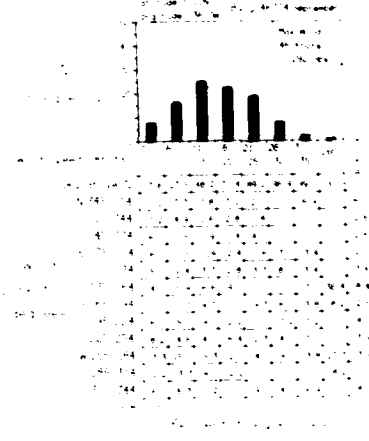
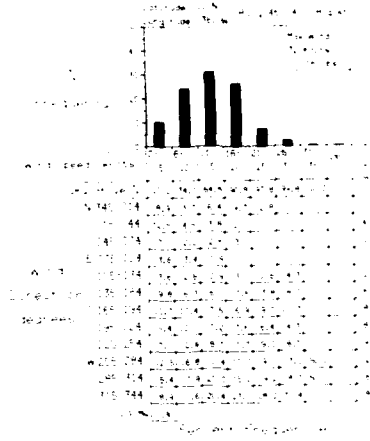
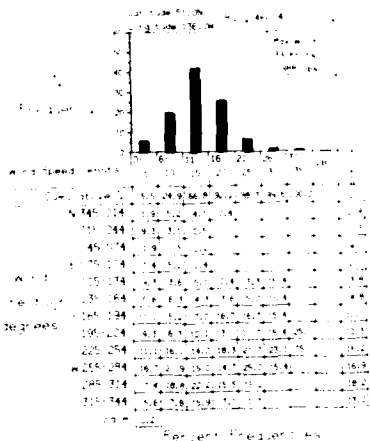


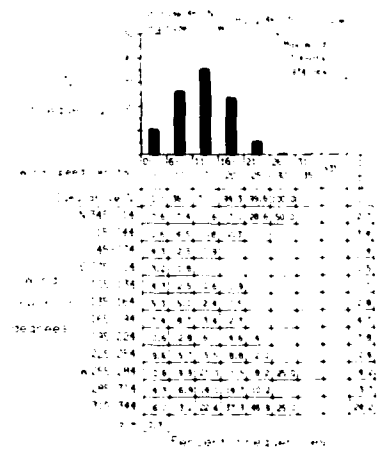
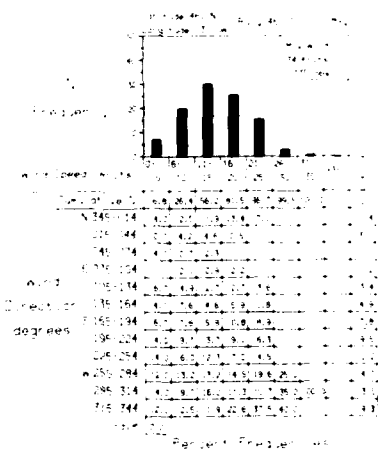
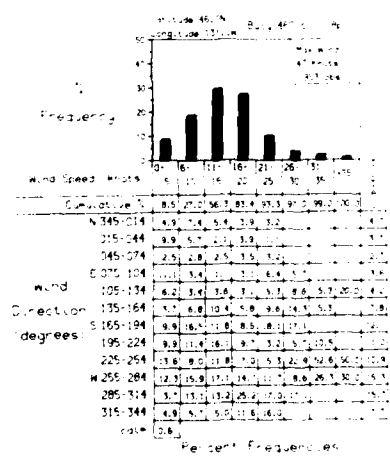
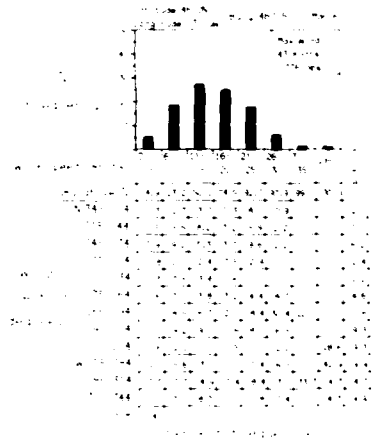
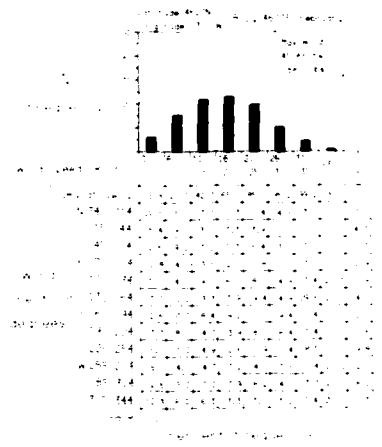
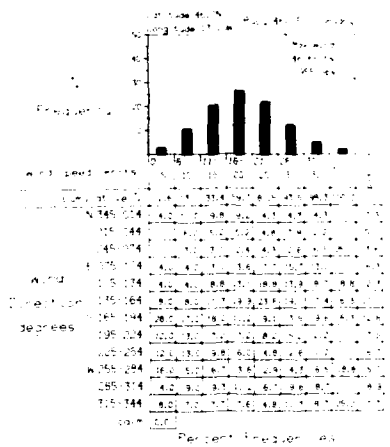


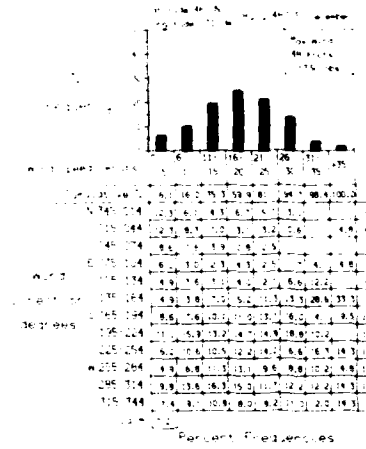
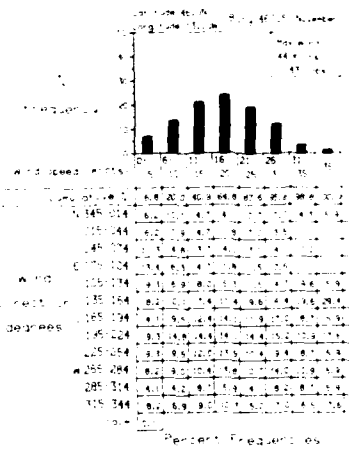
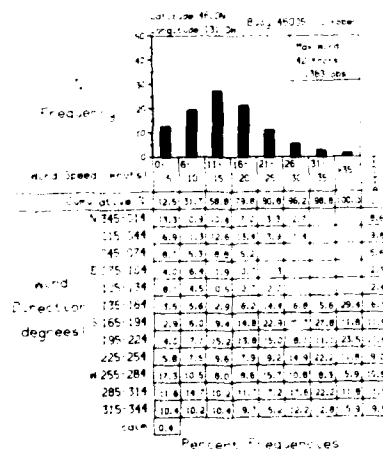
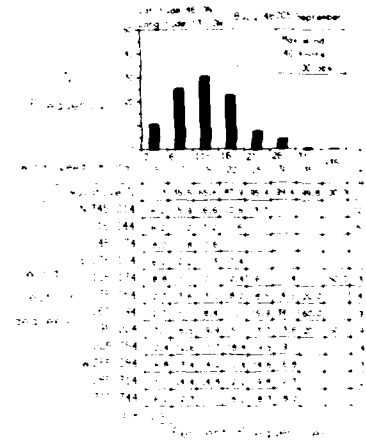
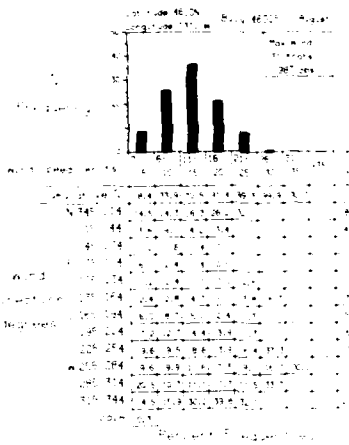
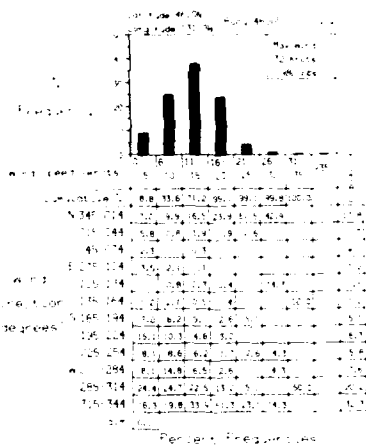


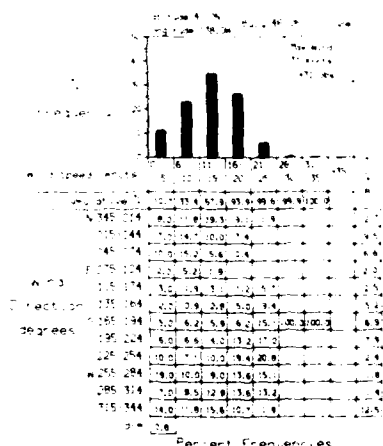
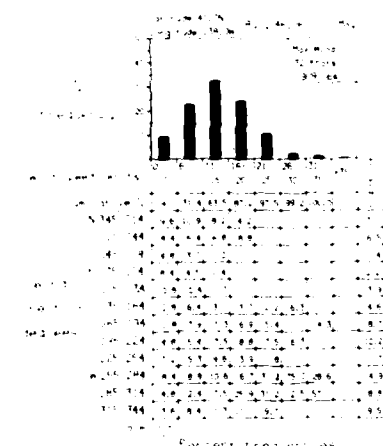
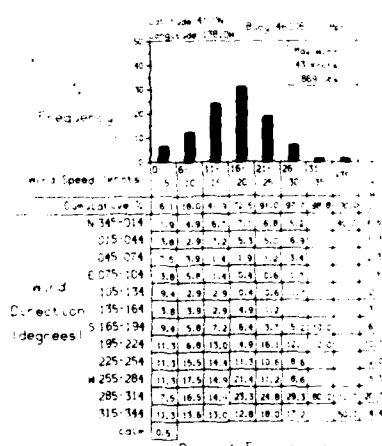
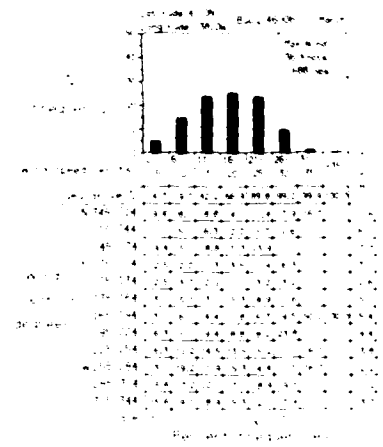
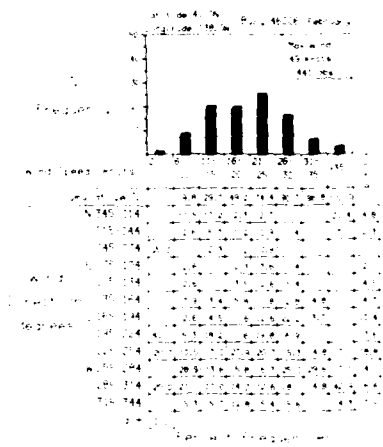
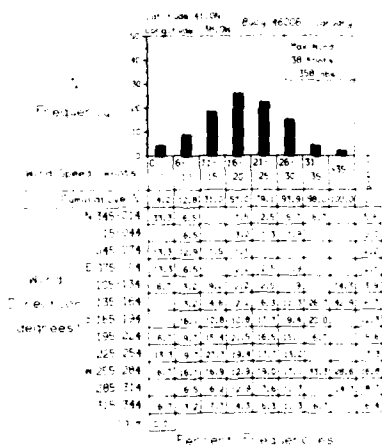


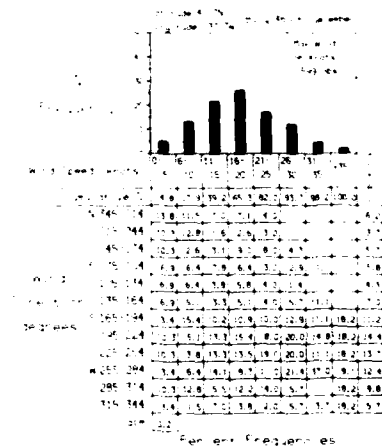
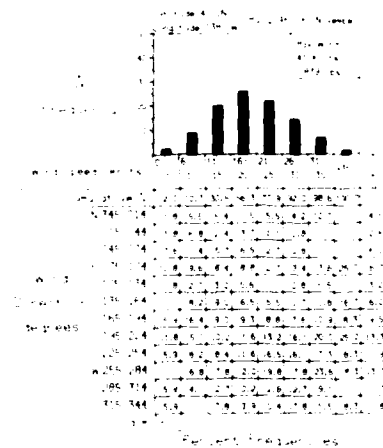
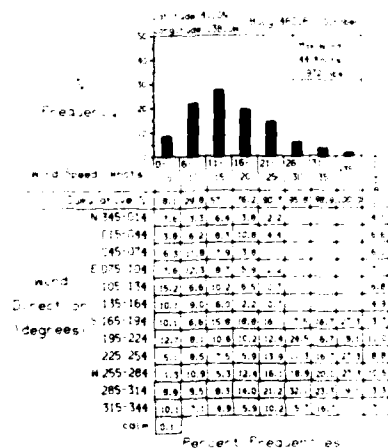
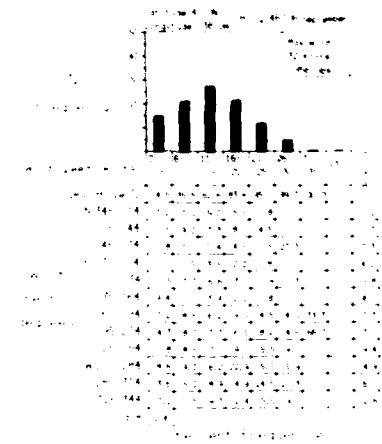
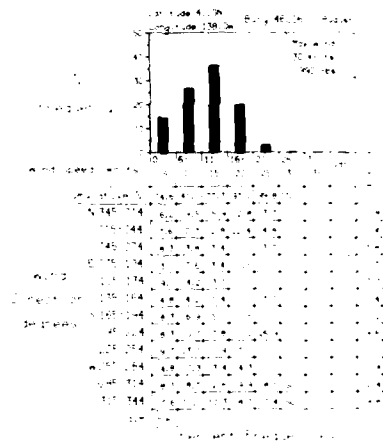
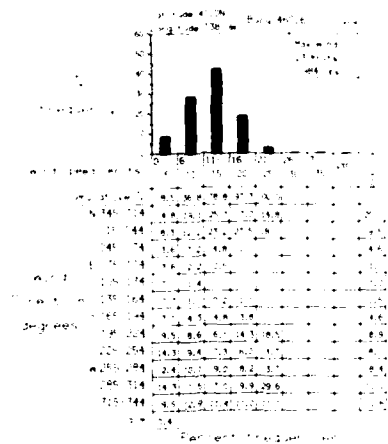


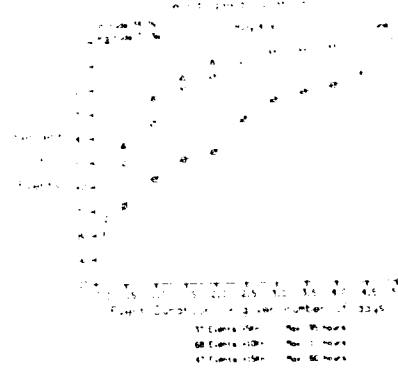
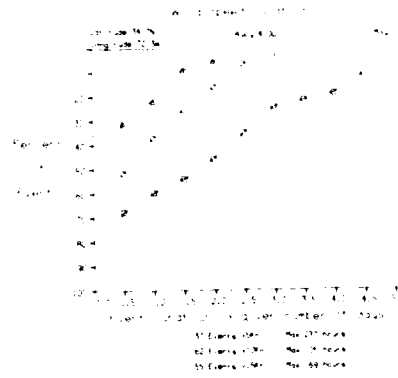
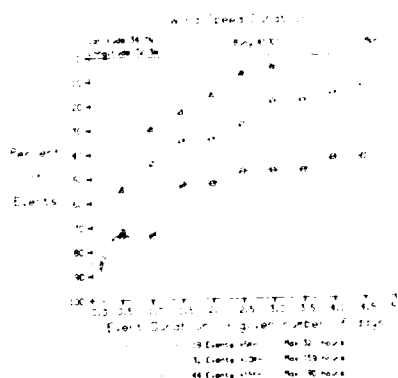
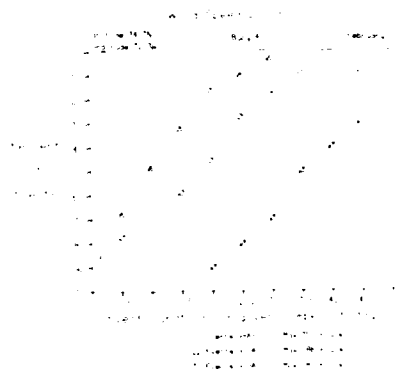
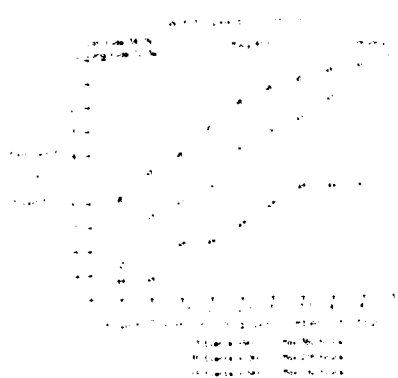


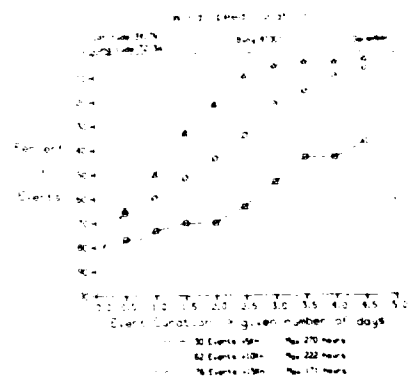
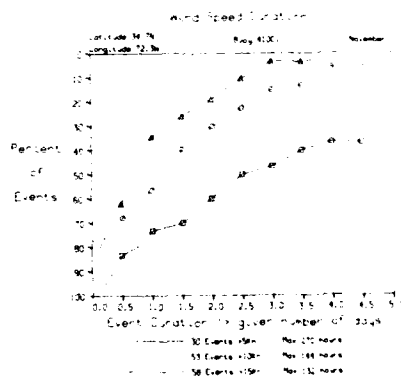
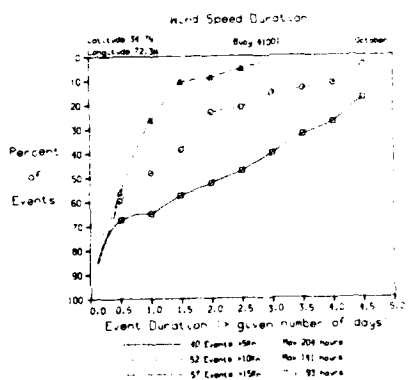
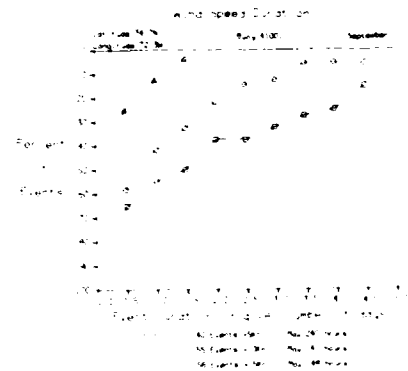
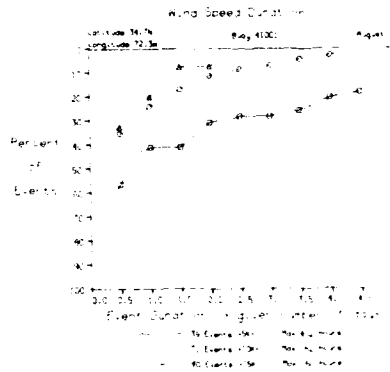
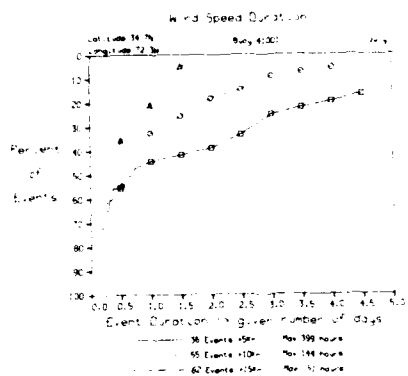


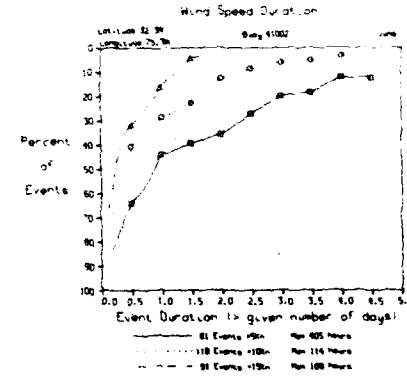
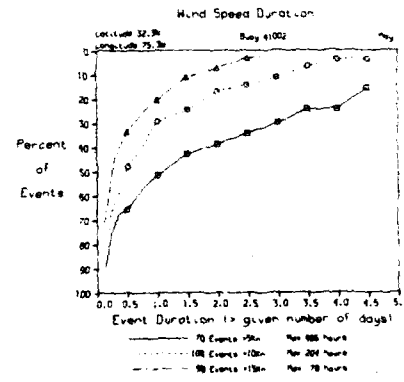
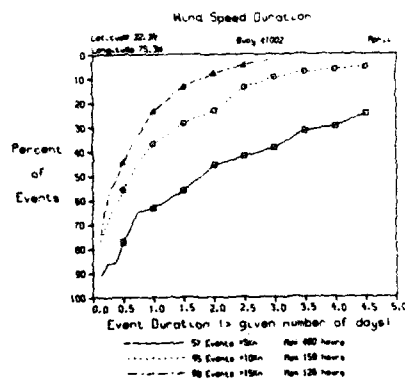
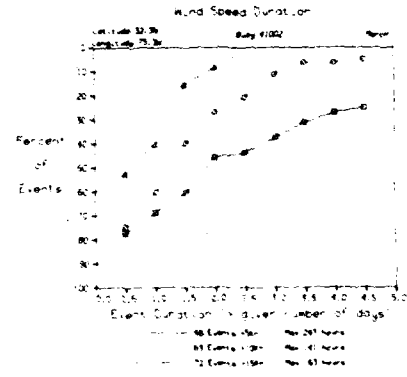
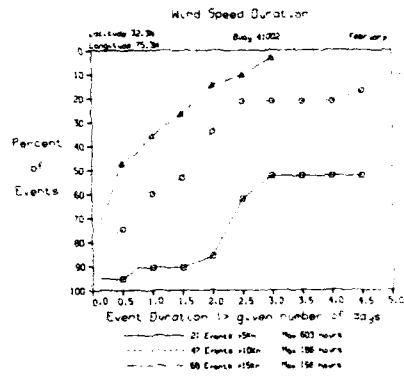
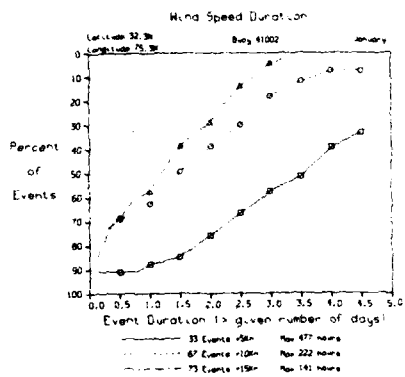


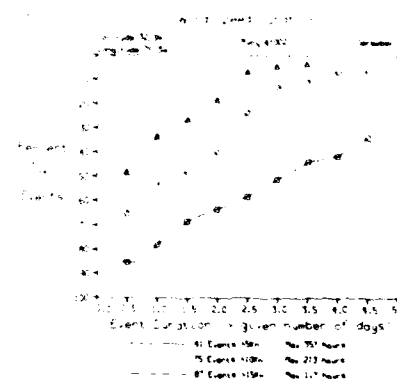
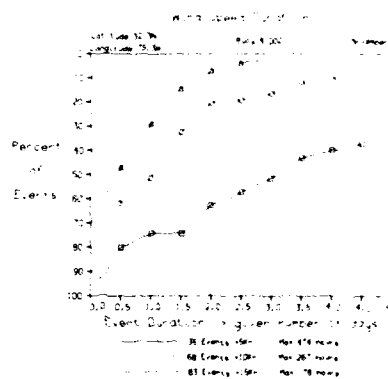
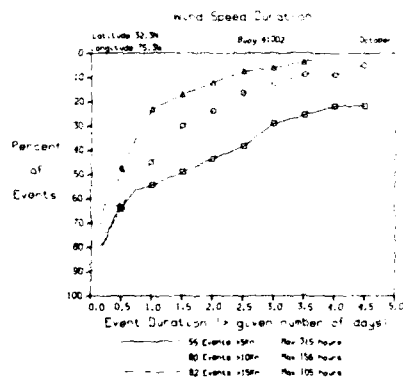
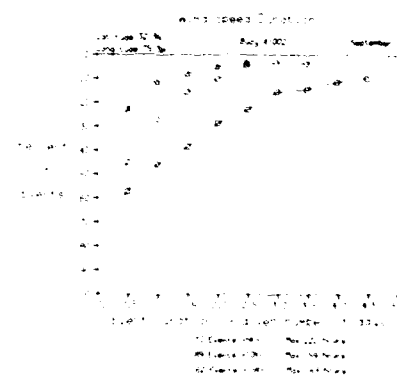
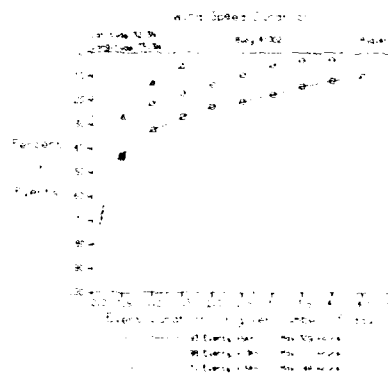
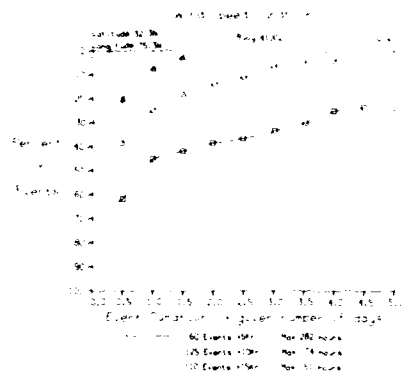


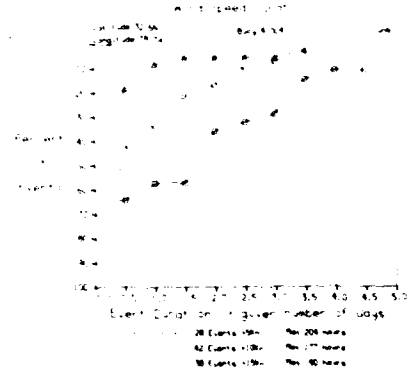
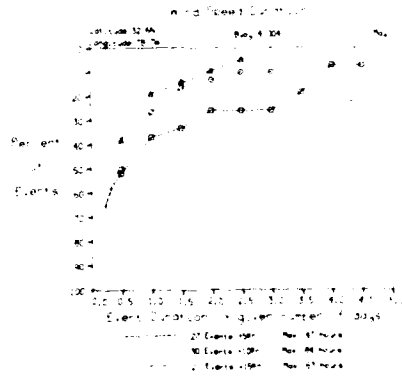
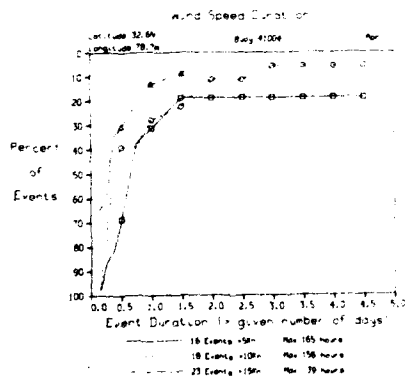
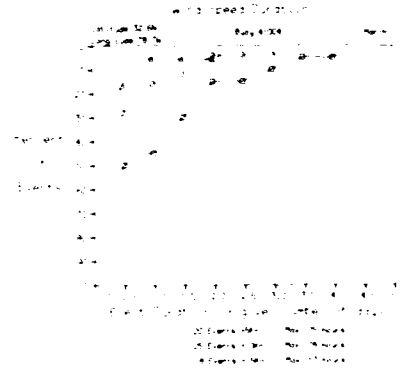
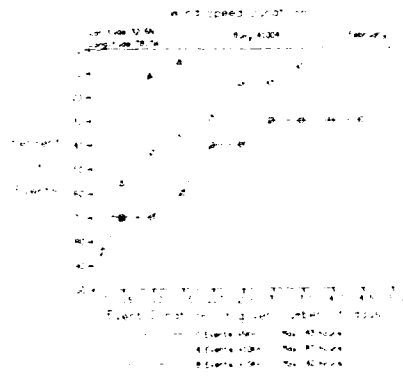
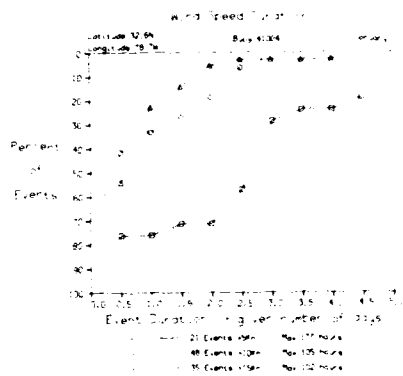


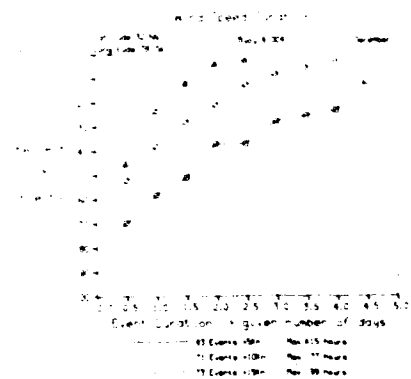
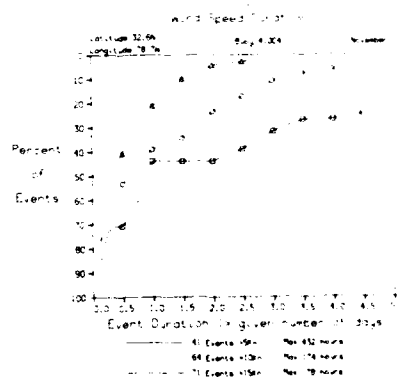
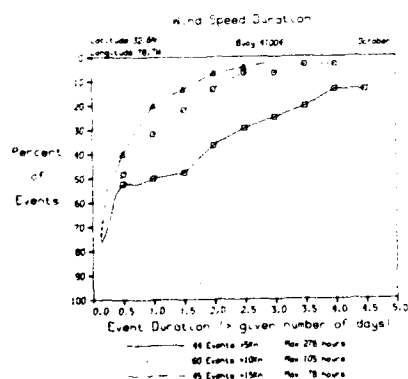
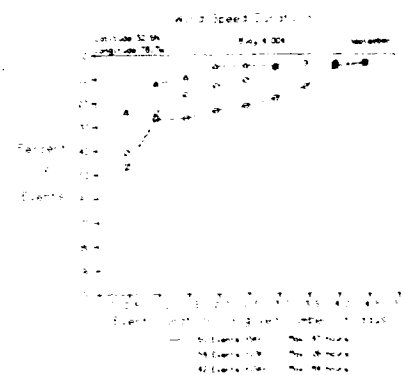
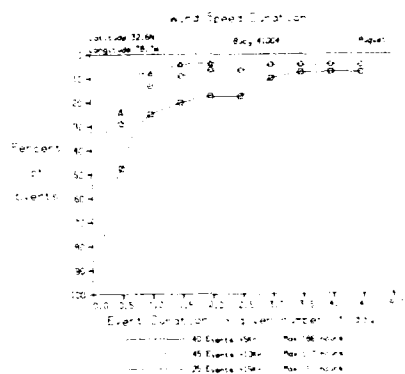
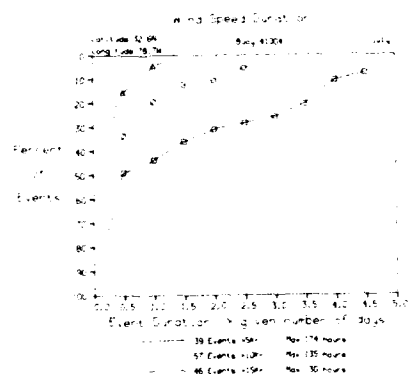


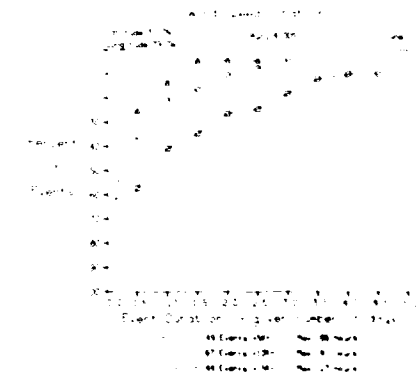
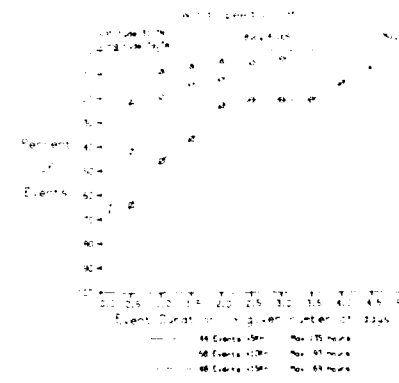
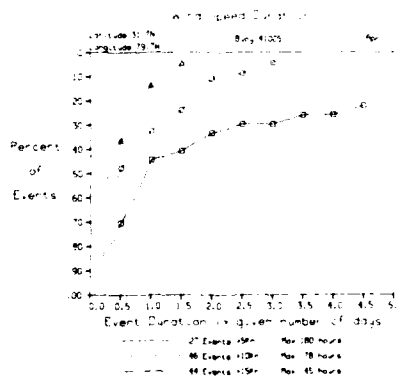
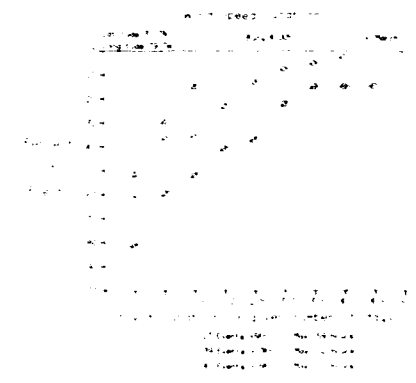
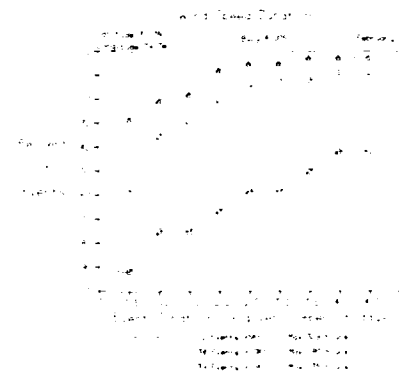
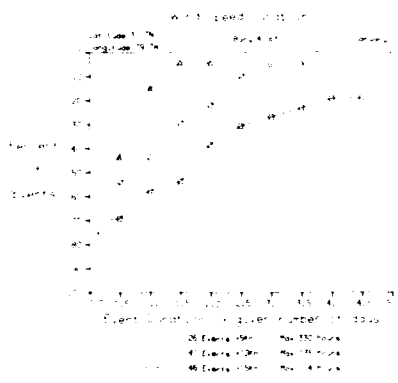










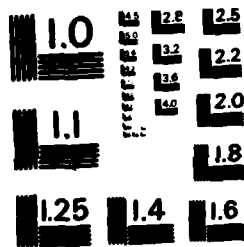


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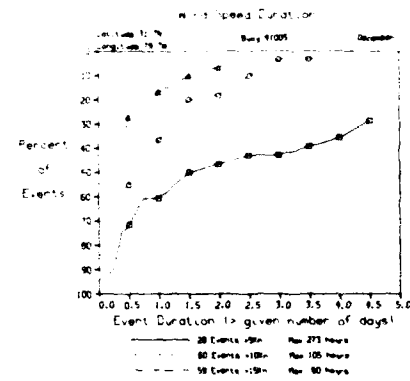
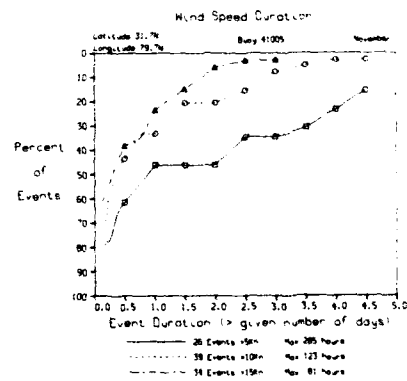
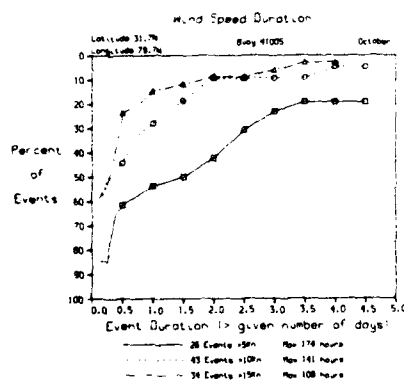
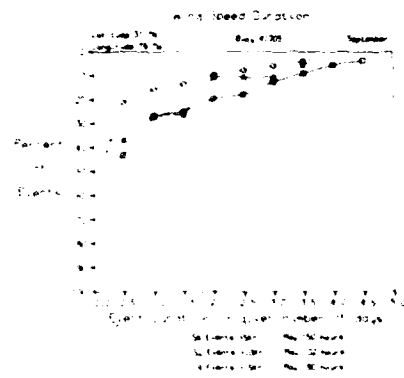
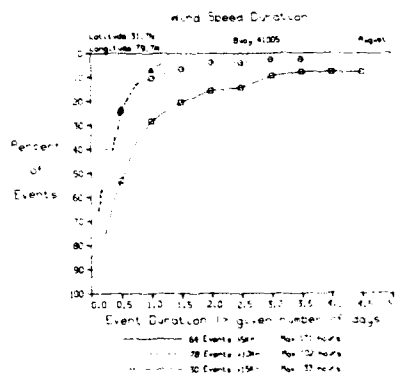
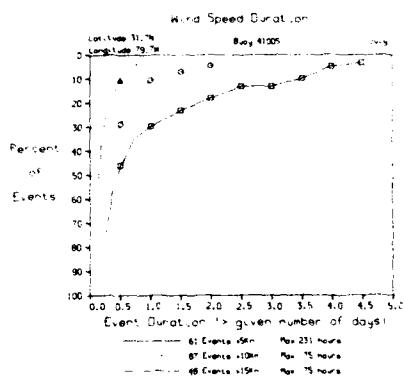
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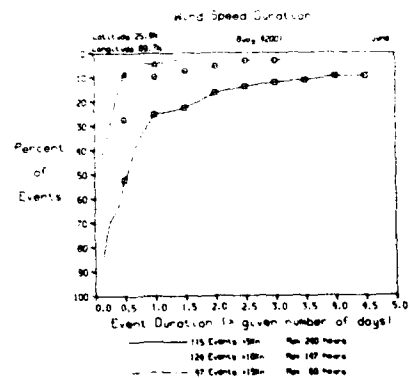
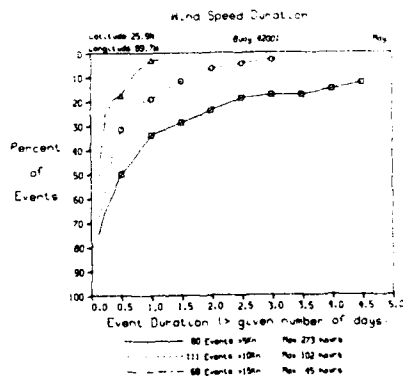
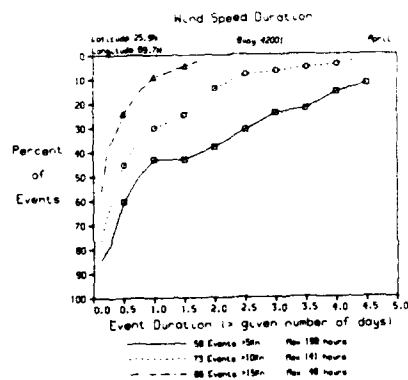
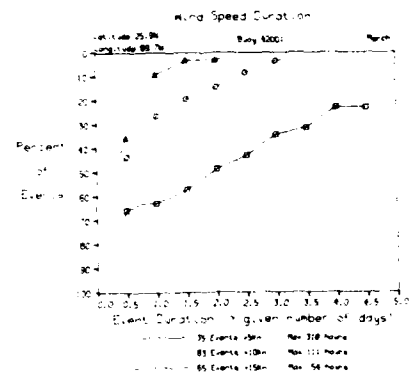
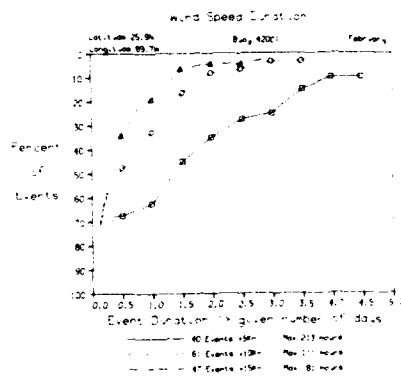
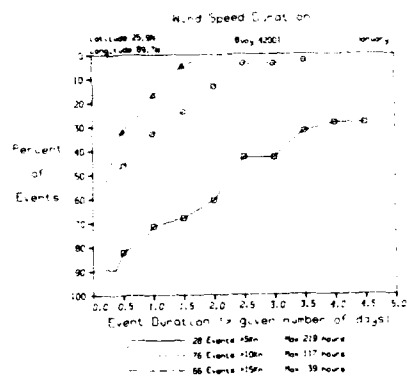
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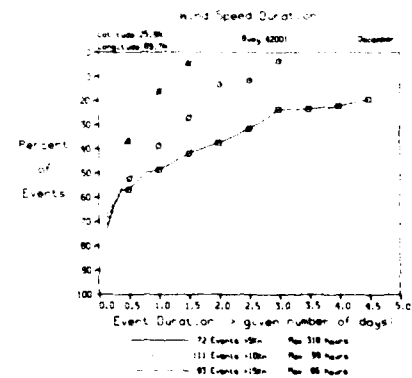
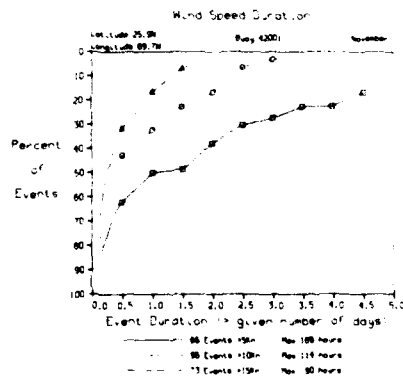
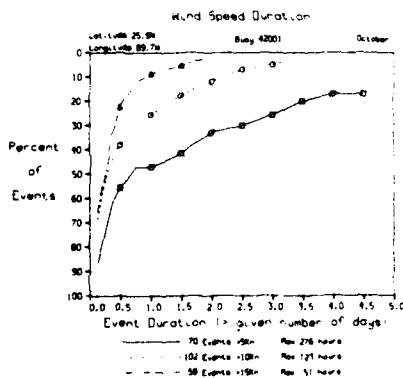
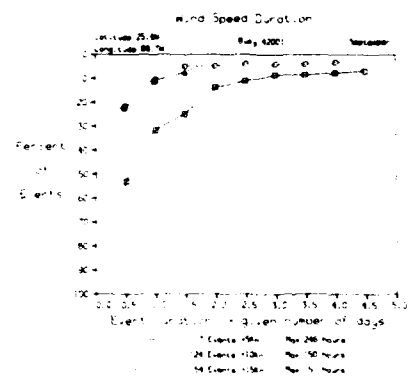
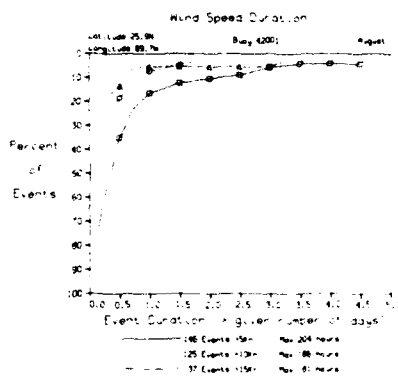
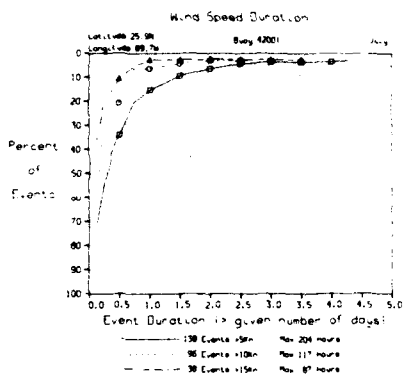
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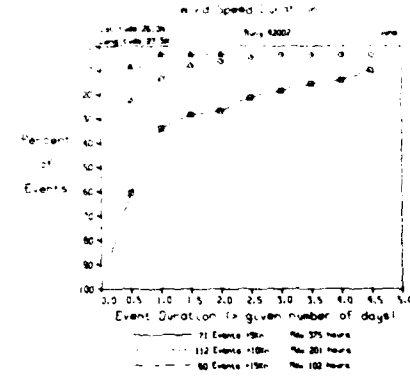
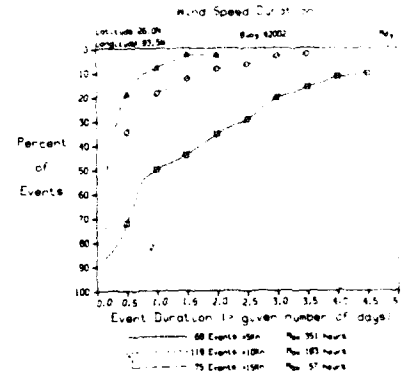
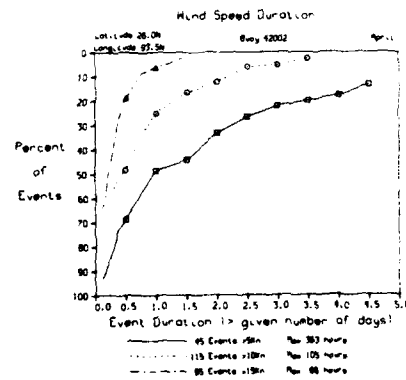
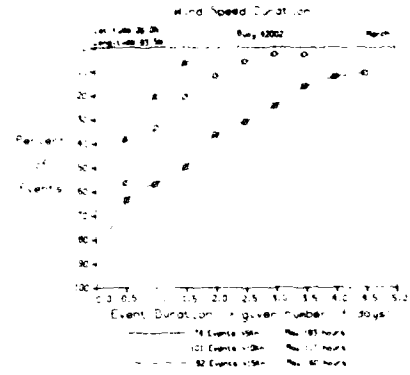
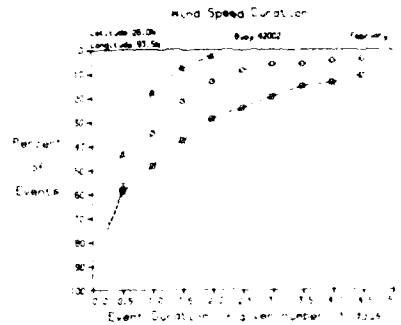
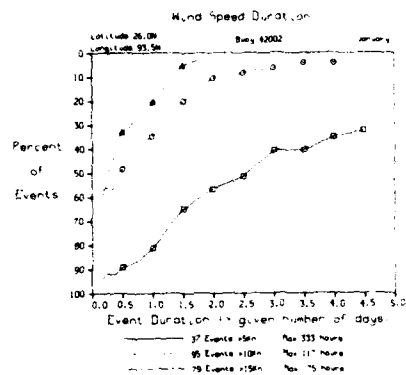


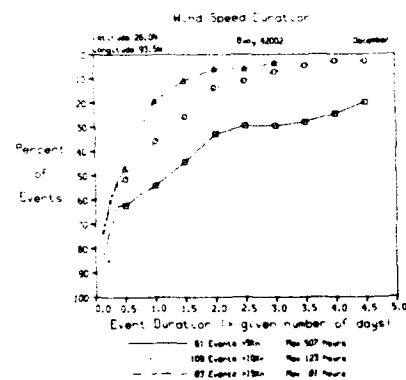
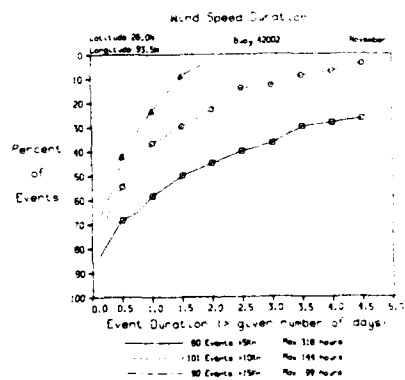
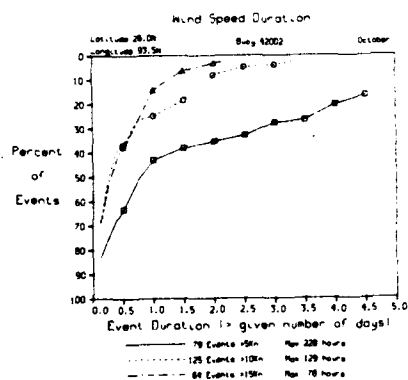
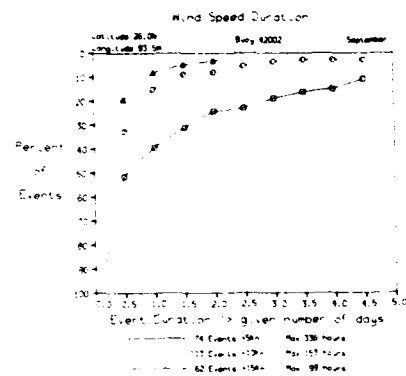
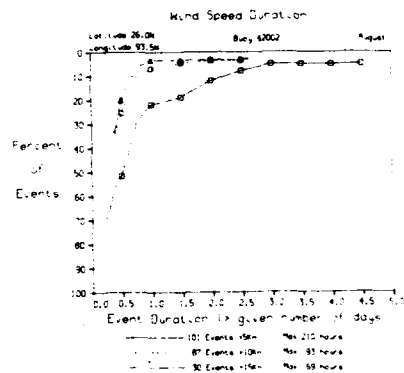
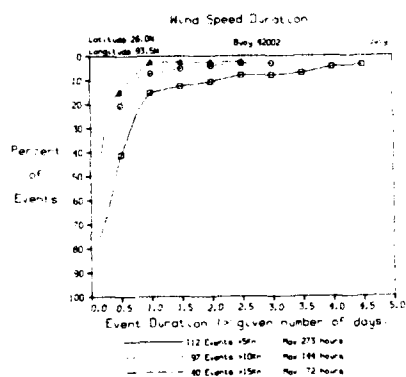
MICROCOPY RESOLUTION TEST CHART
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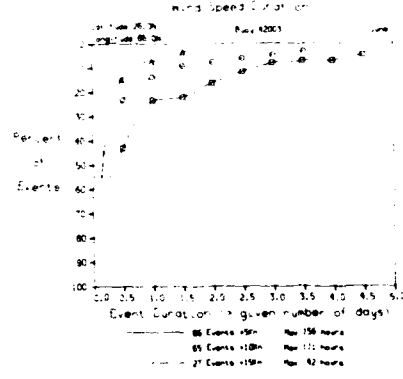
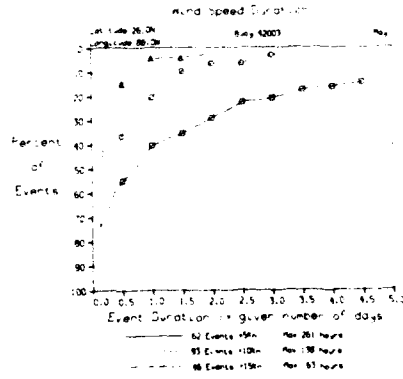
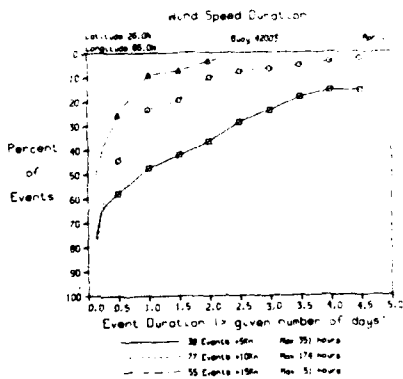
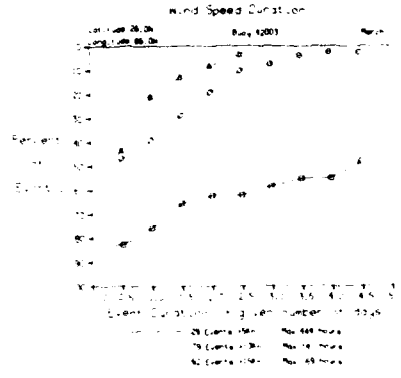
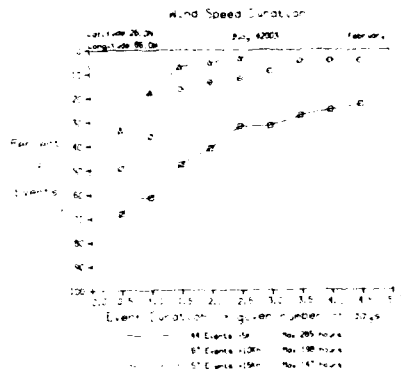
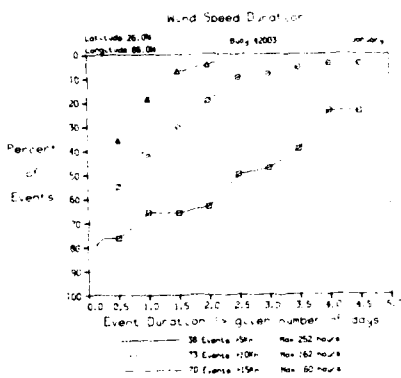


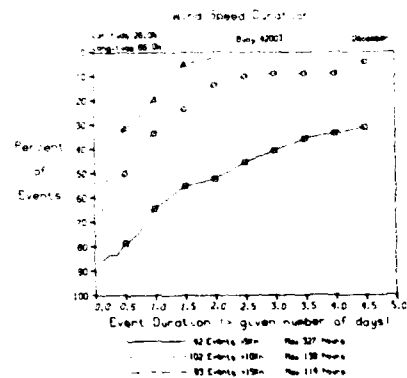
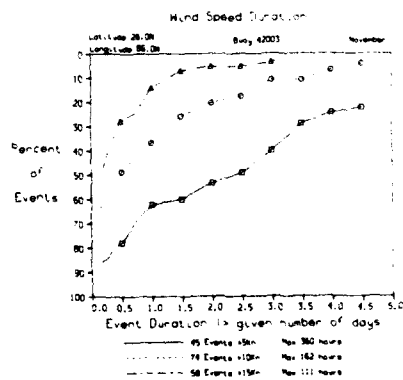
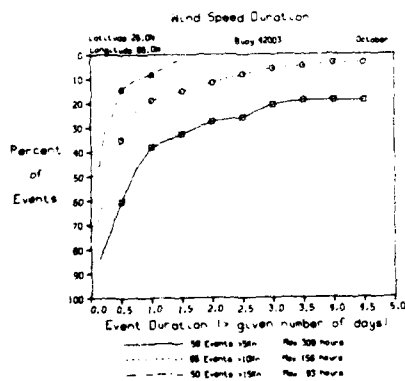
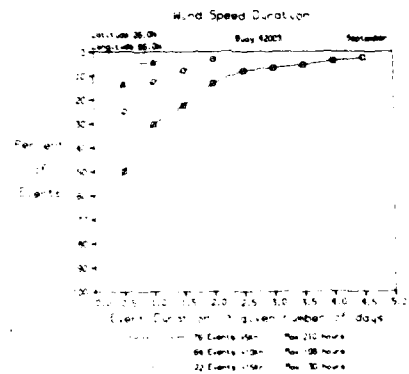
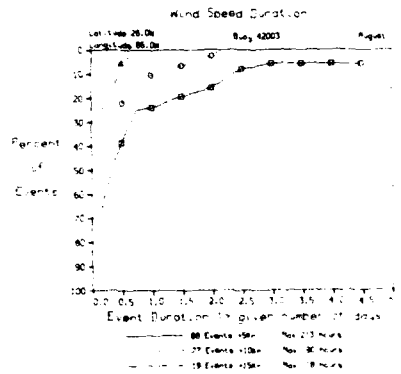
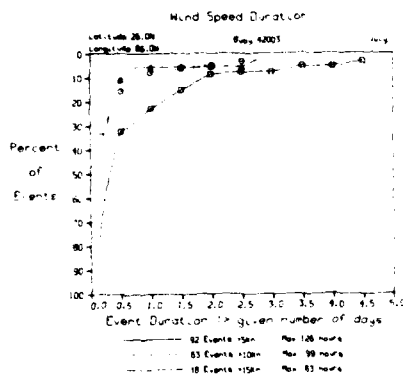


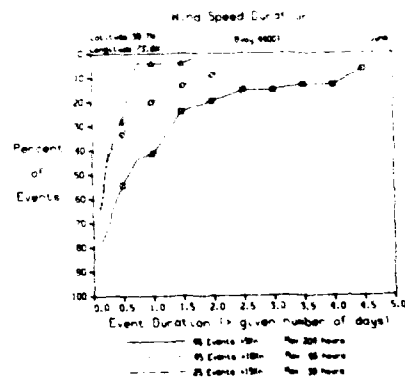
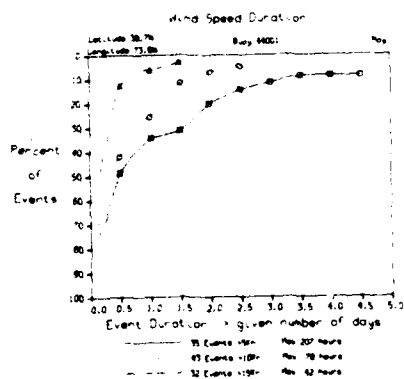
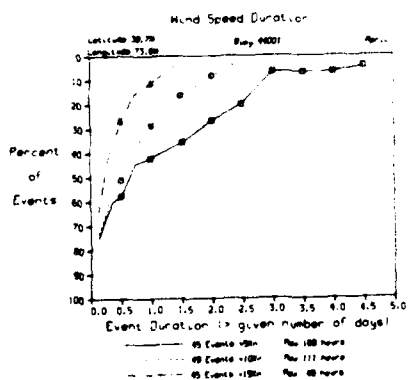
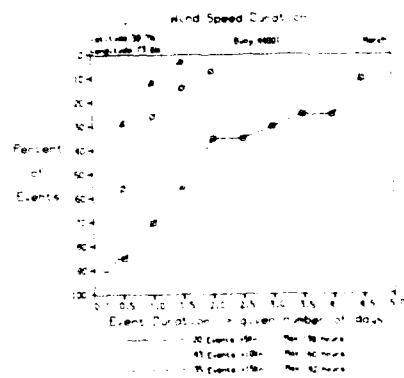
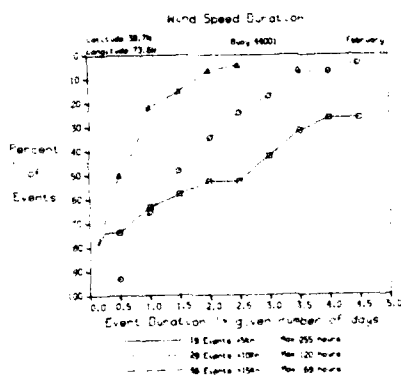
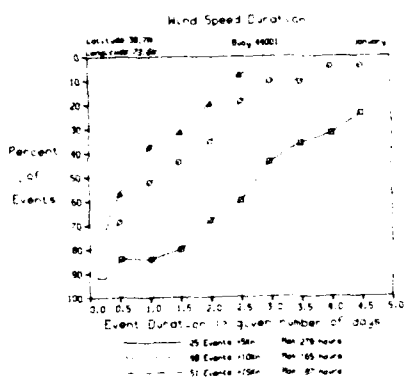


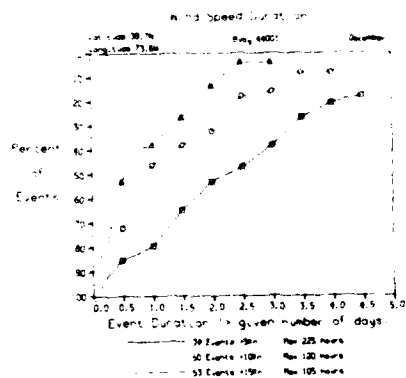
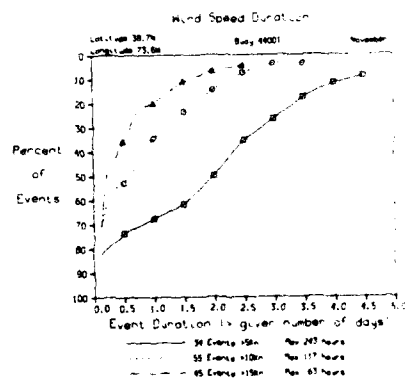
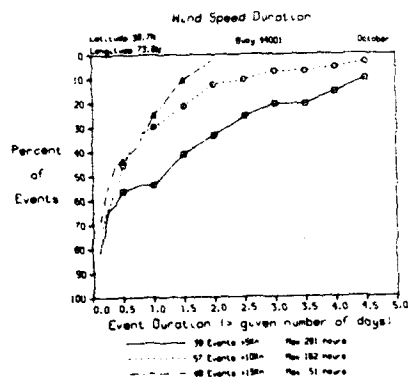
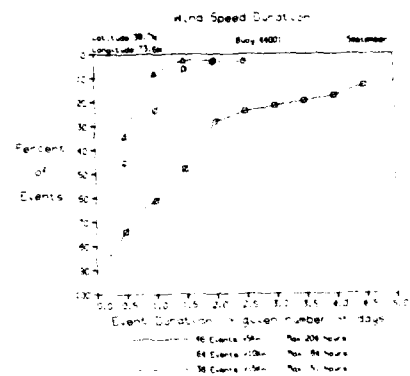
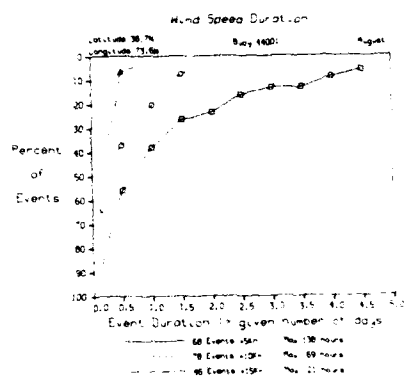
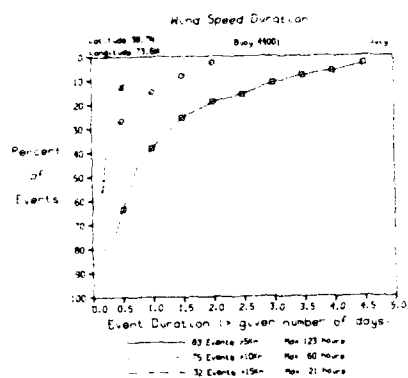


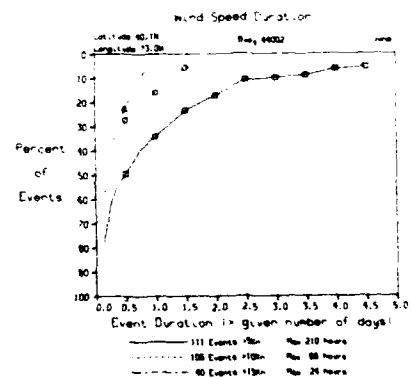
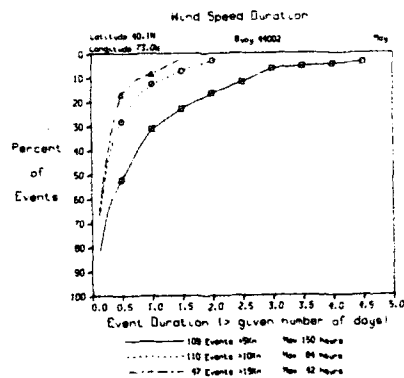
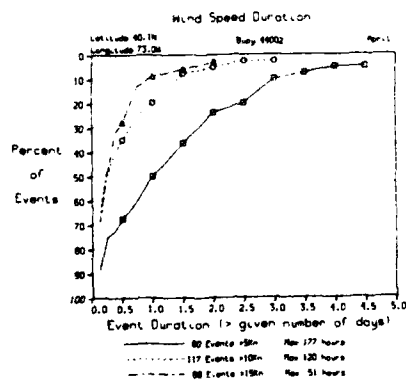
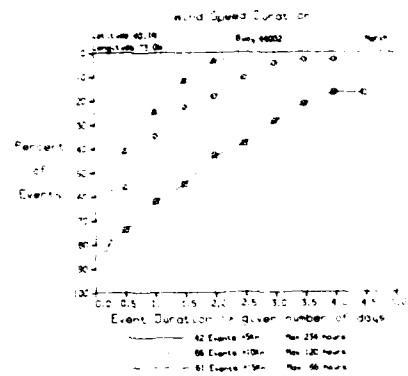
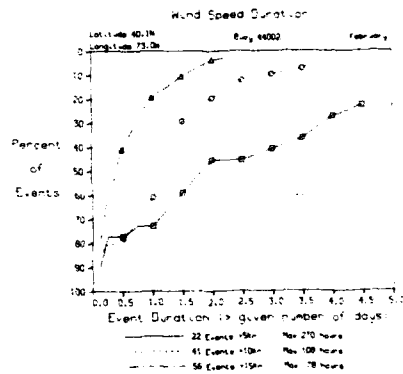
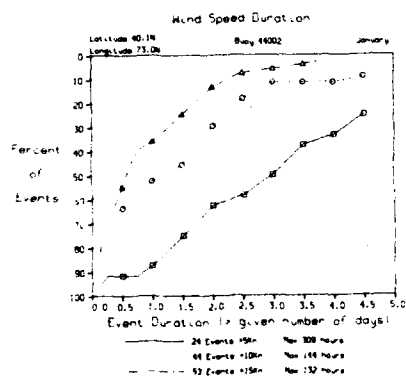


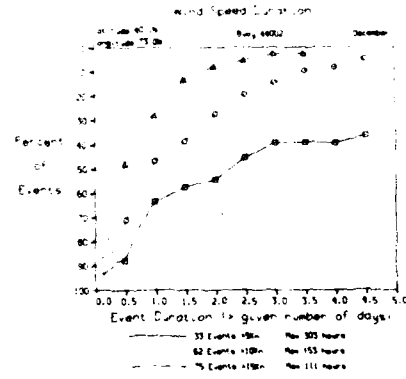
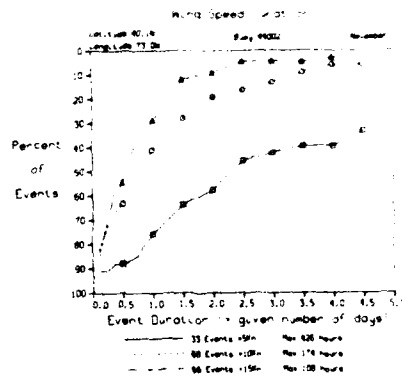
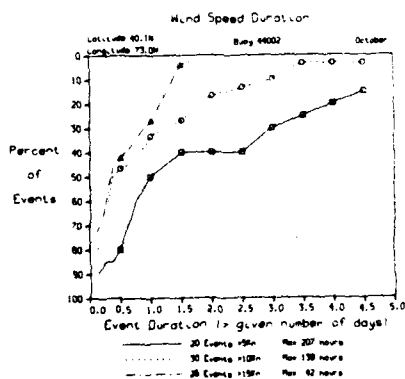
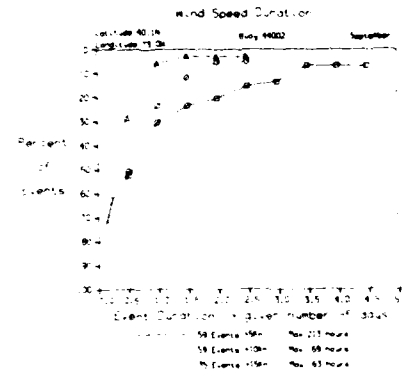
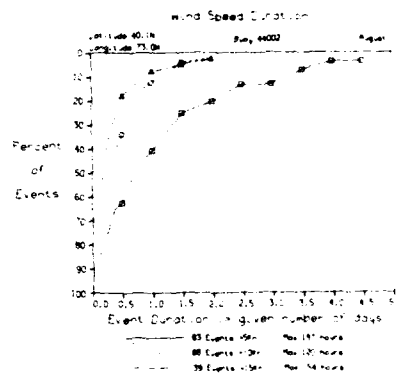
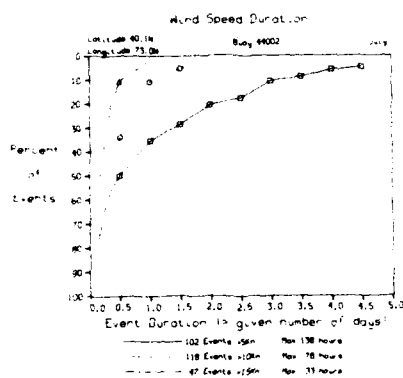


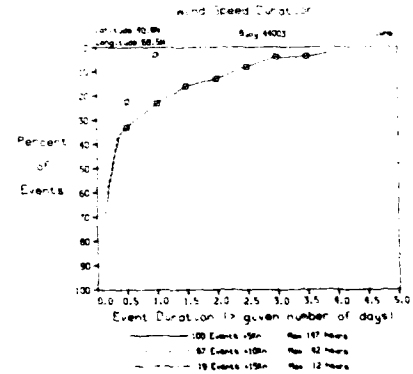
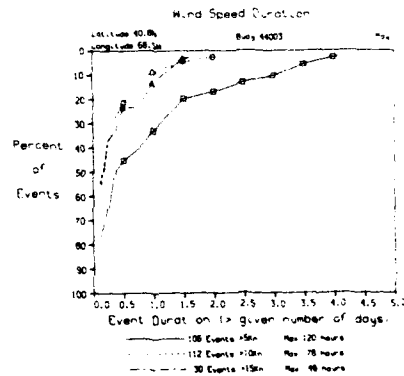
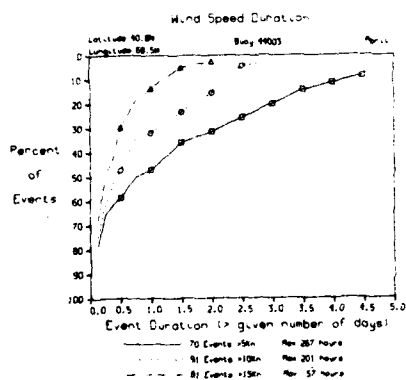
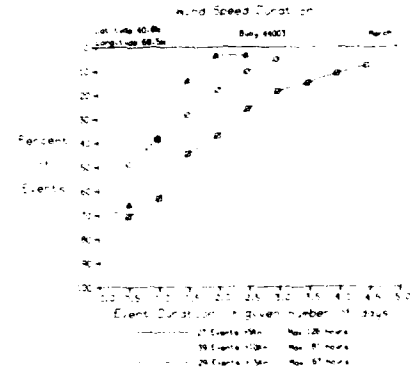
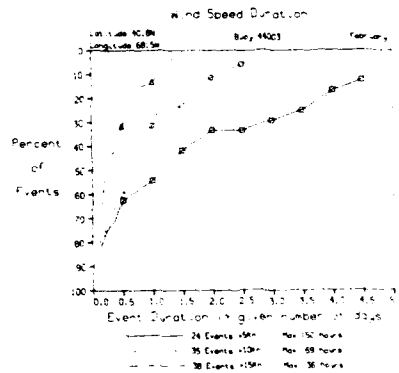
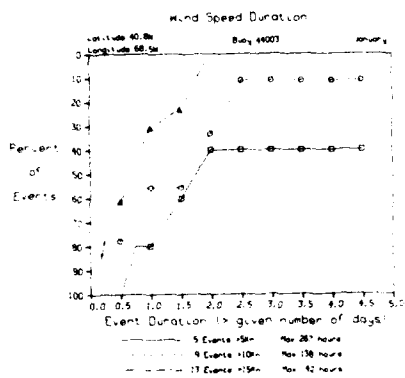


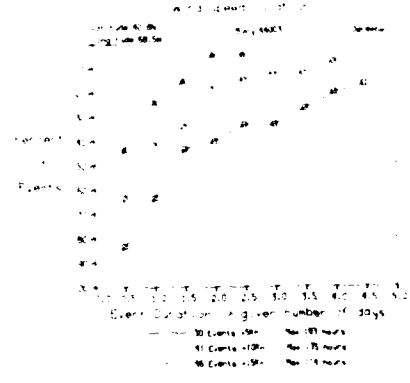
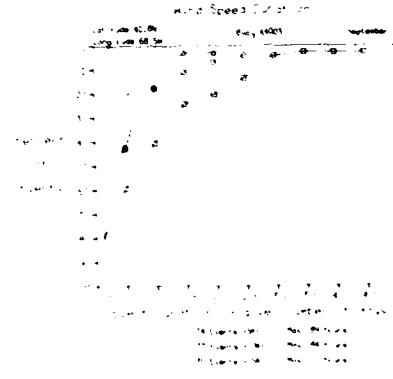


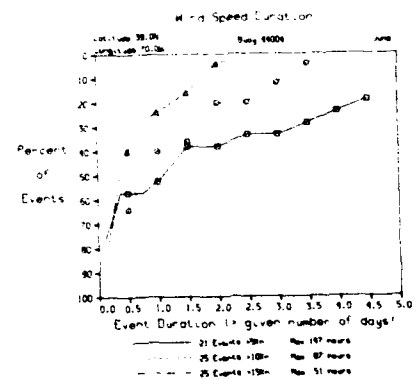
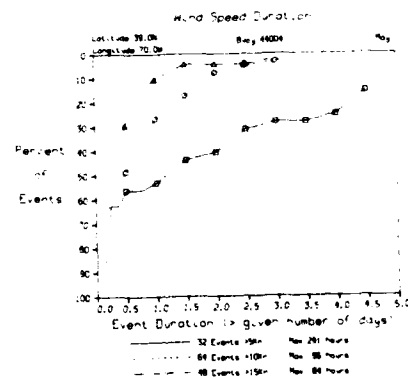
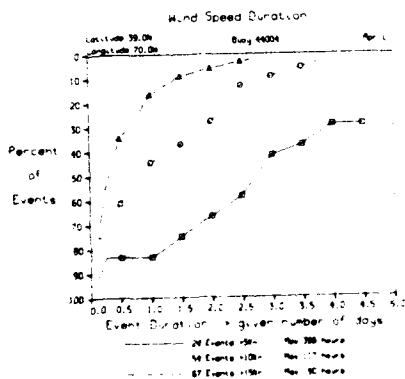
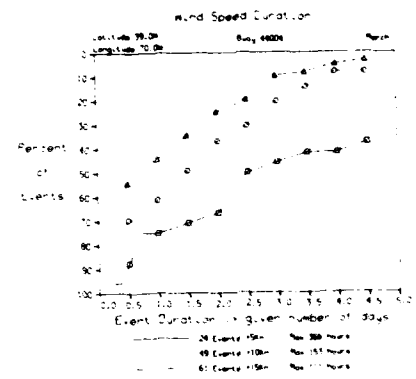
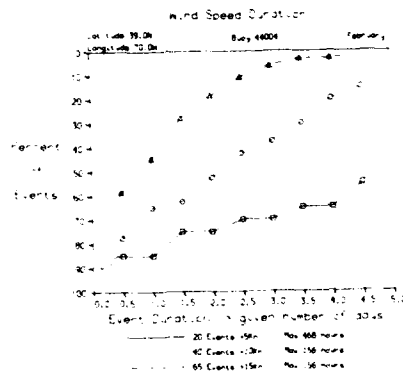
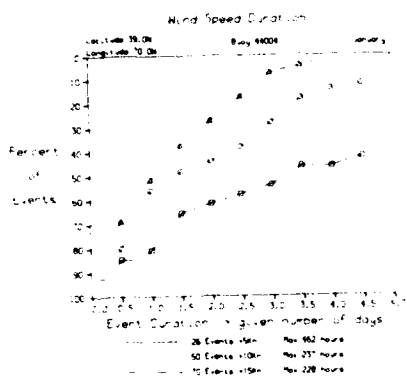


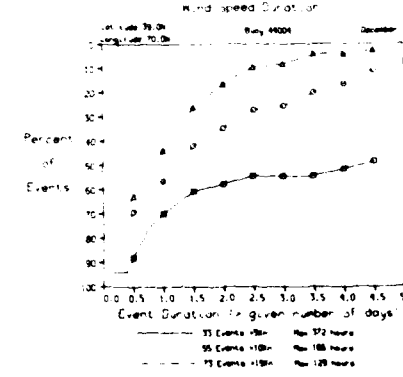
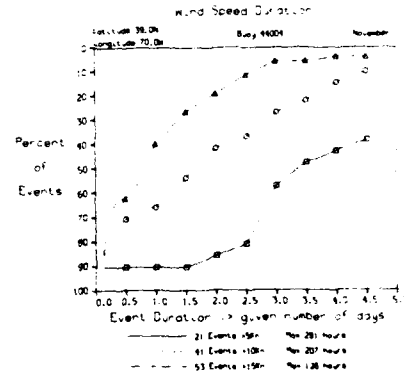
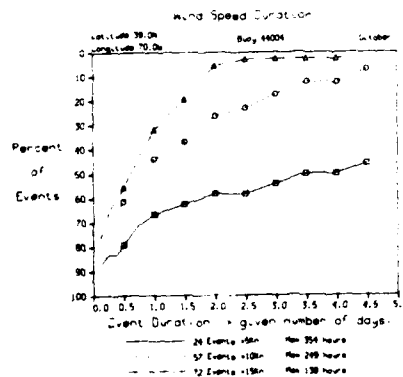
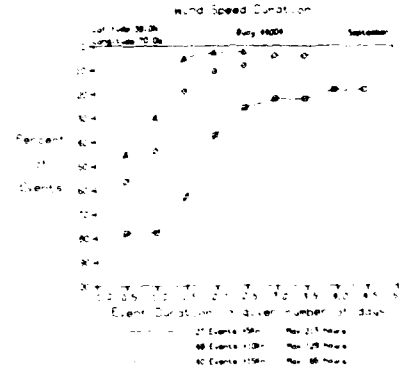
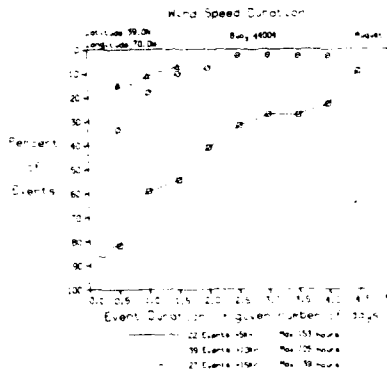
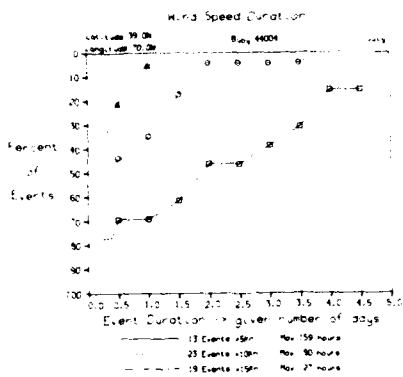


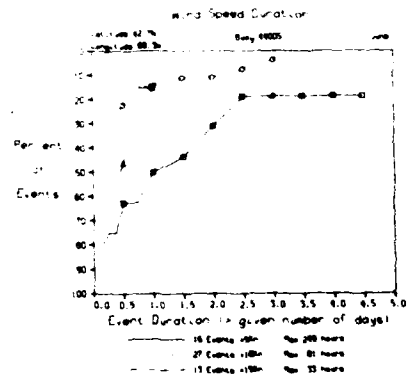
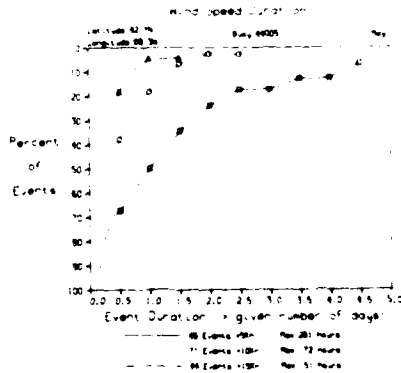
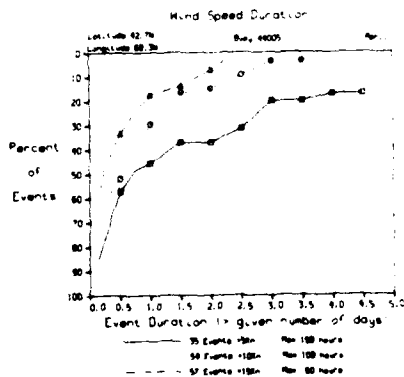
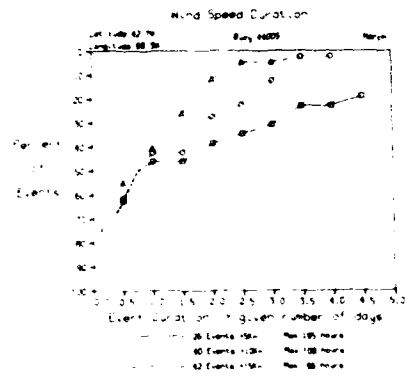
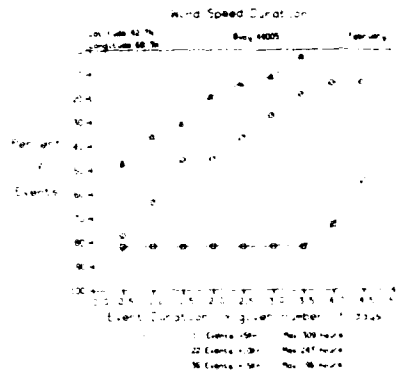
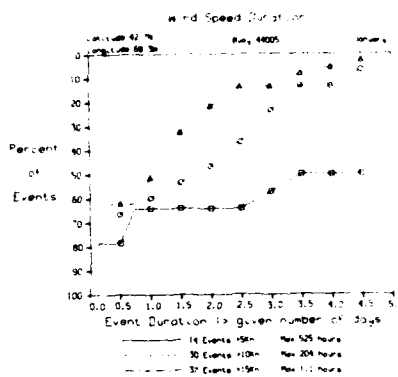


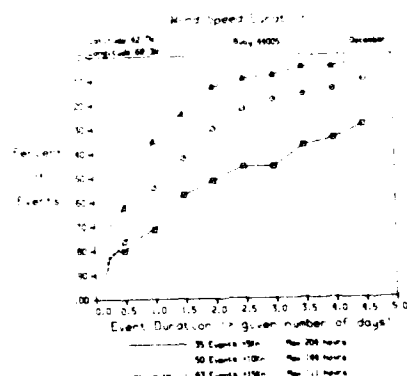
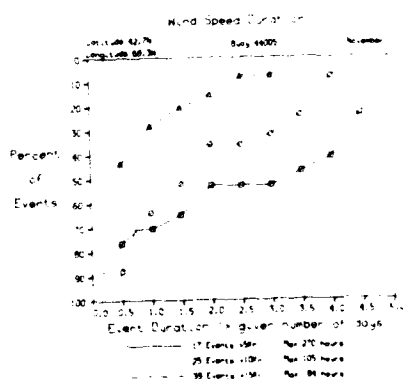
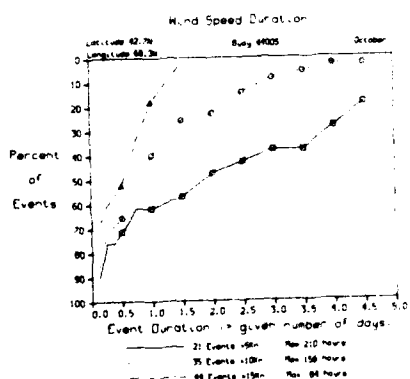
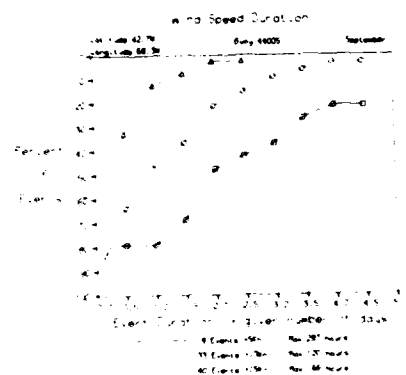
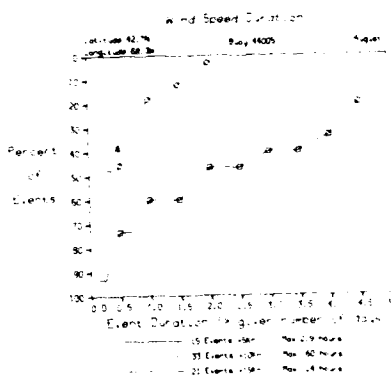
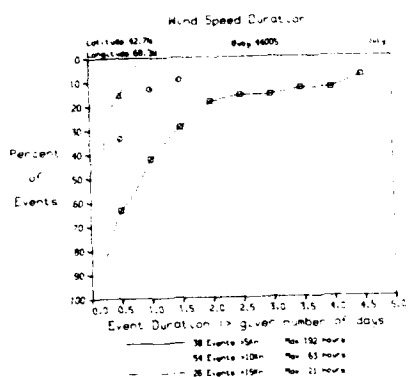












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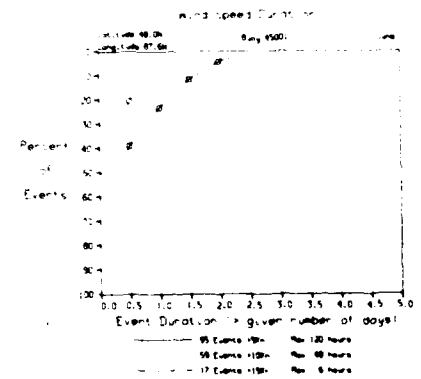
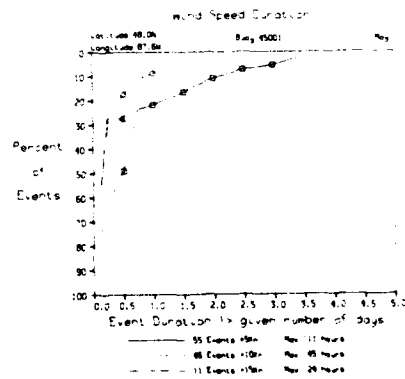
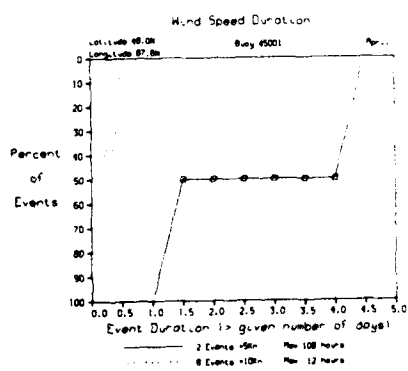
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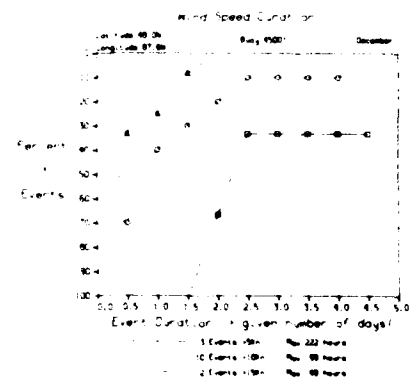
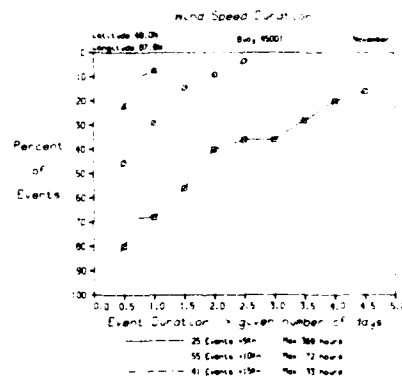
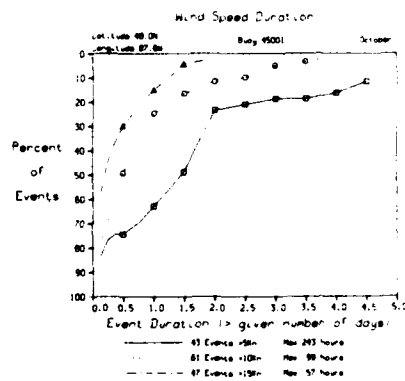
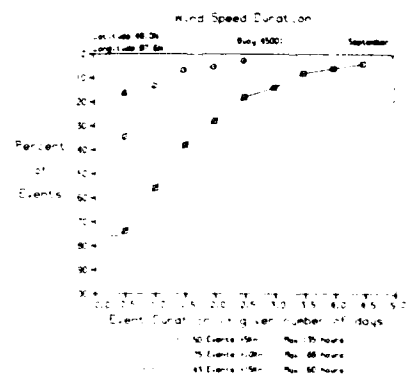
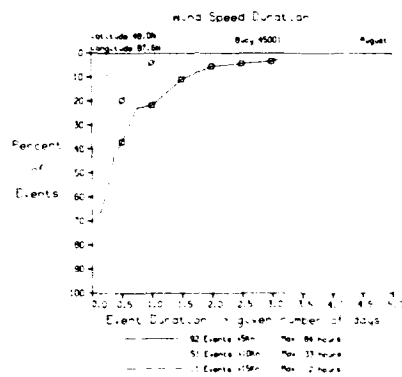
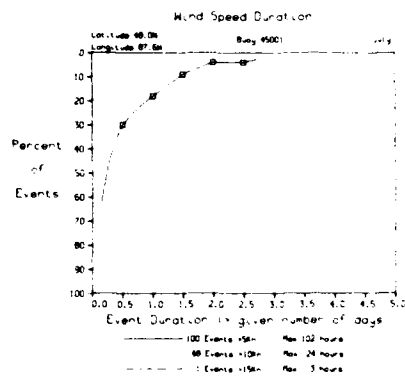
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March

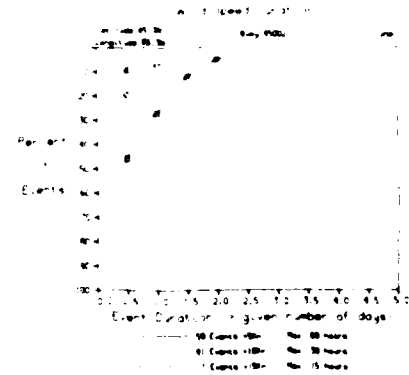
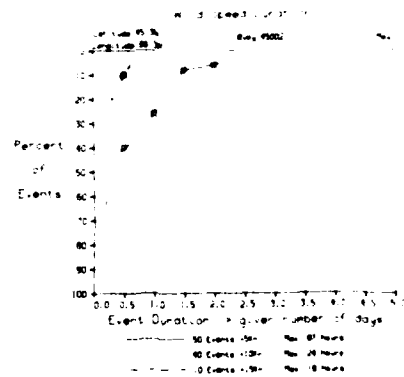
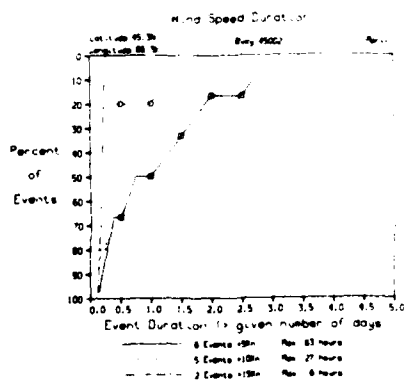


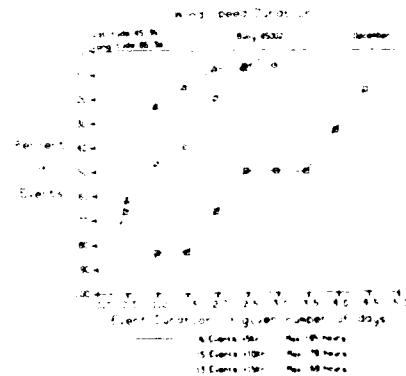
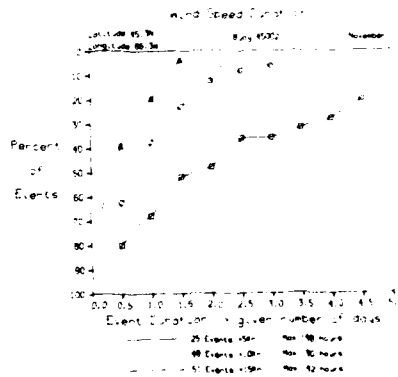
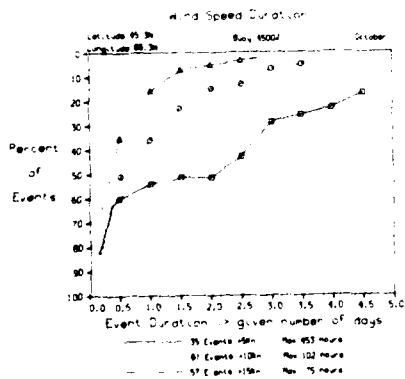
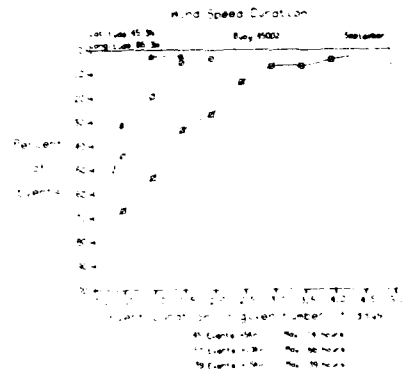
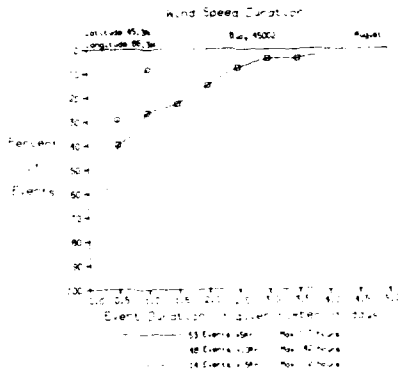
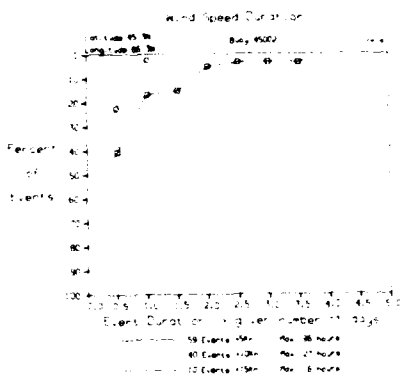


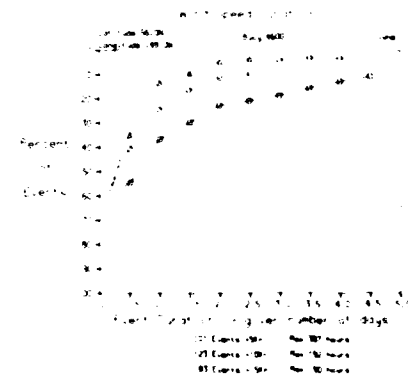
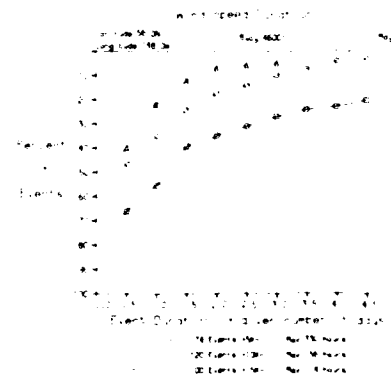
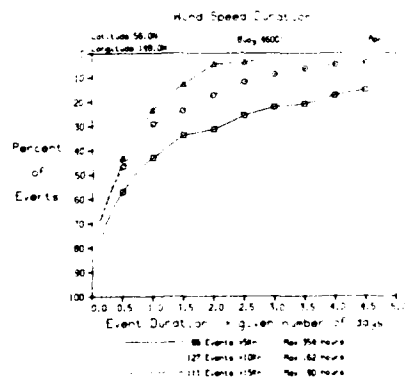
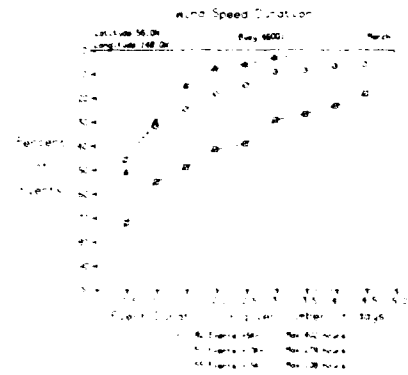
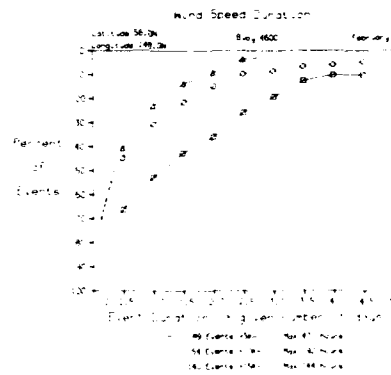
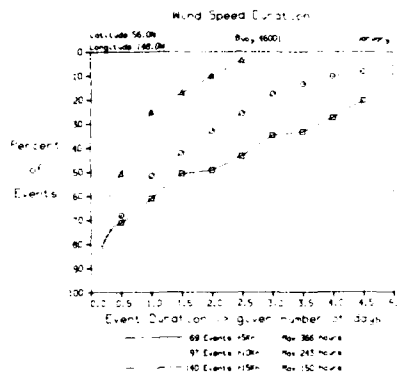
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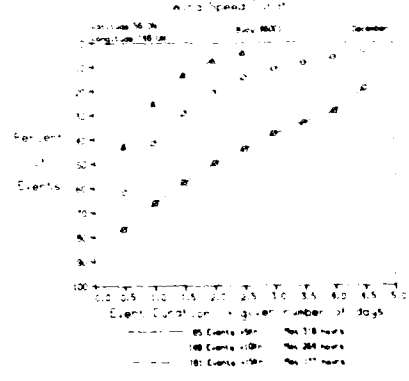
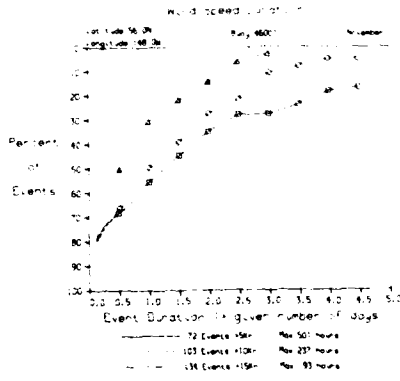
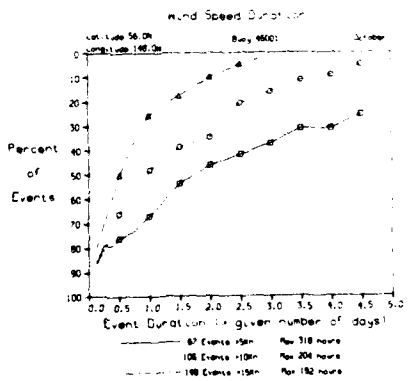
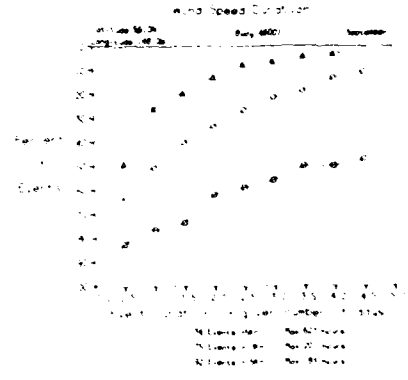
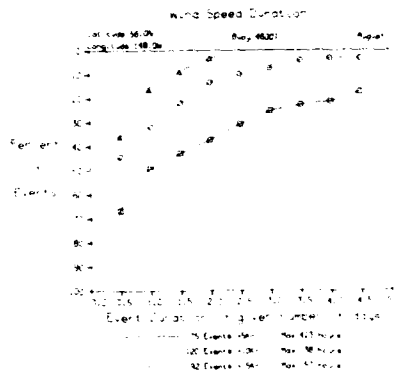
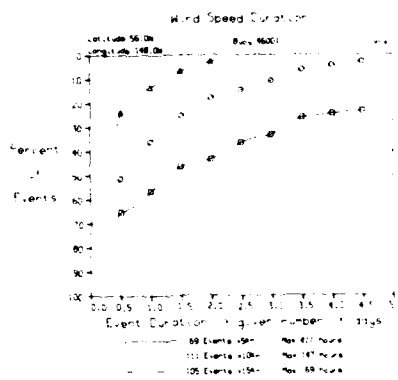
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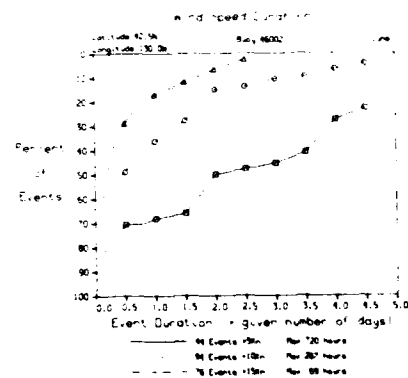
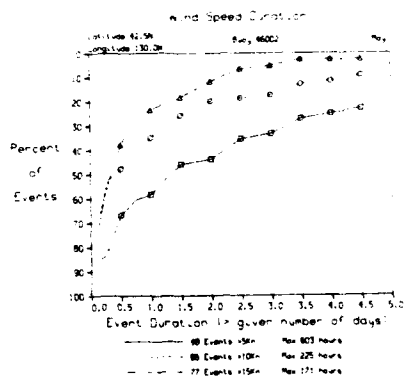
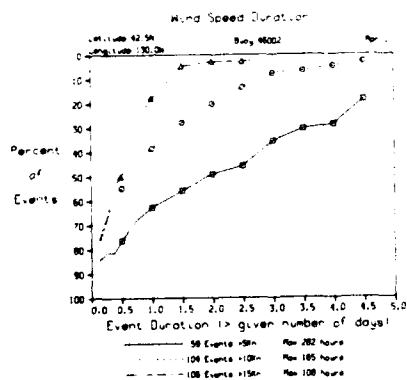
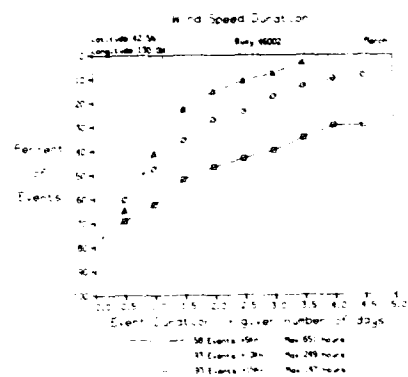
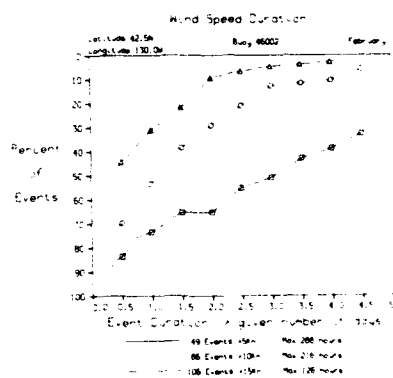
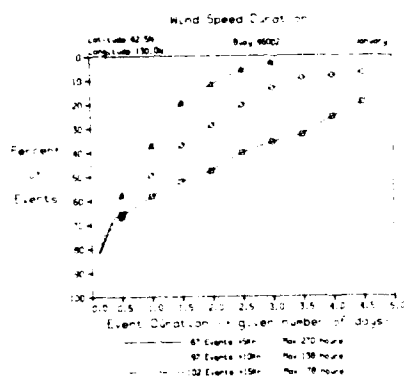
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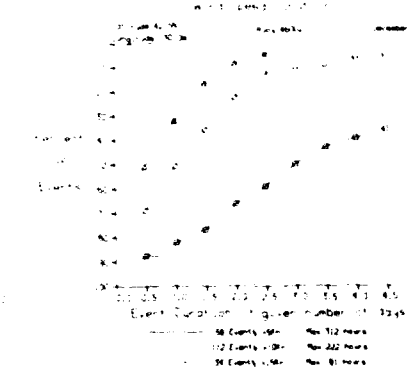
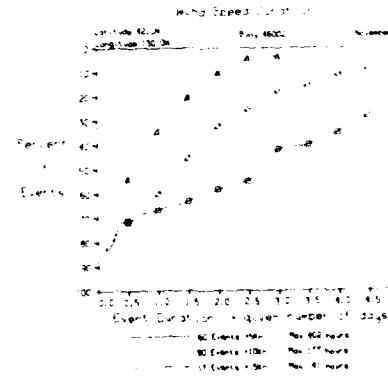
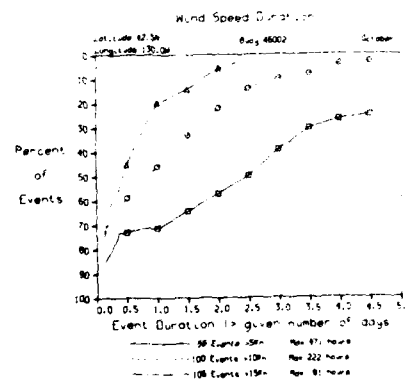
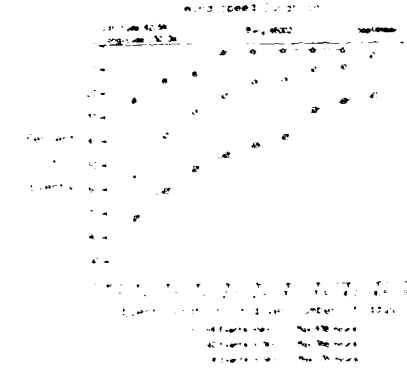
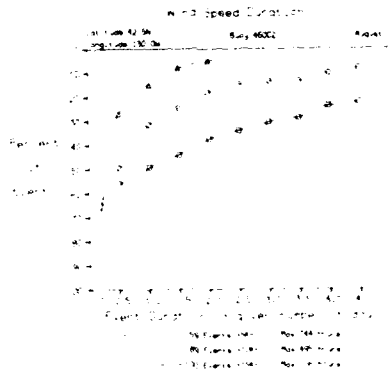
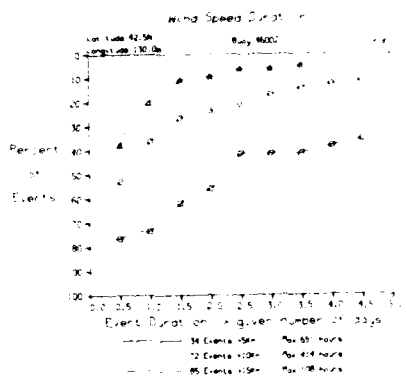


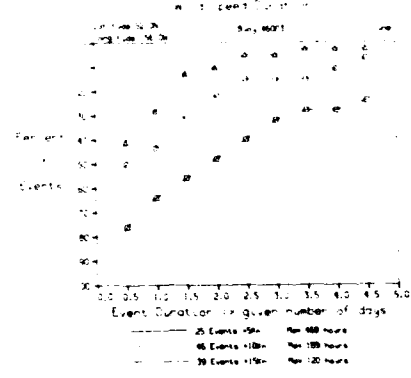
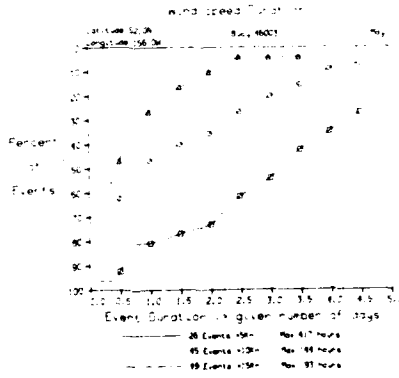
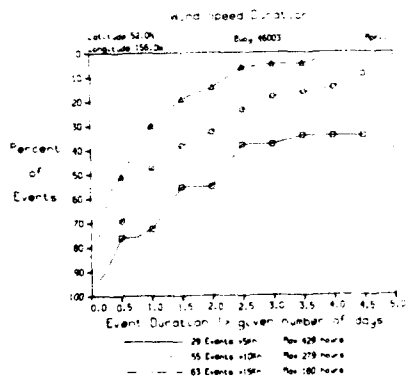
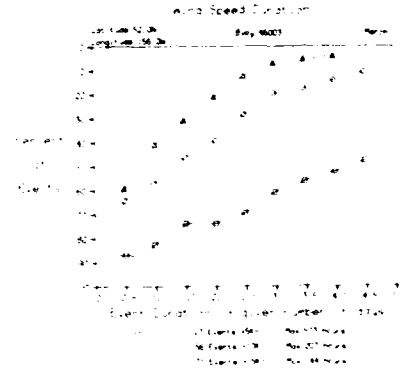
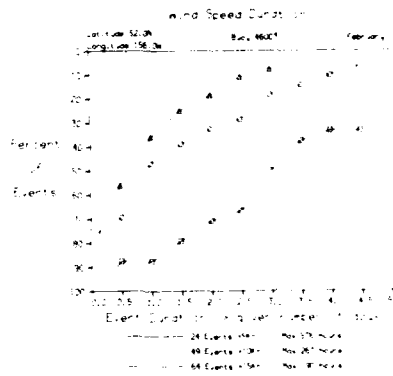
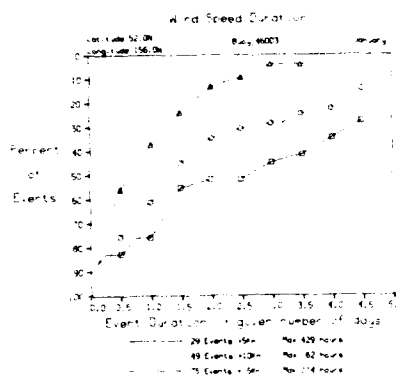


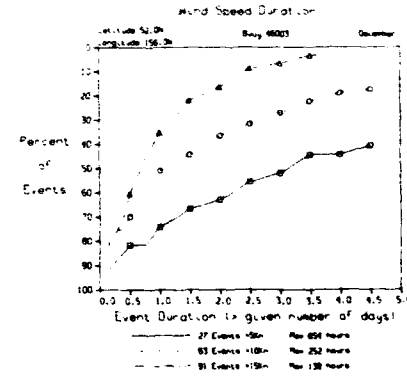
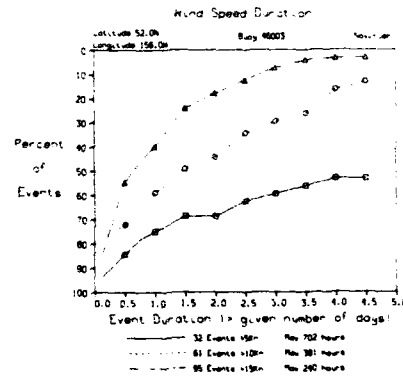
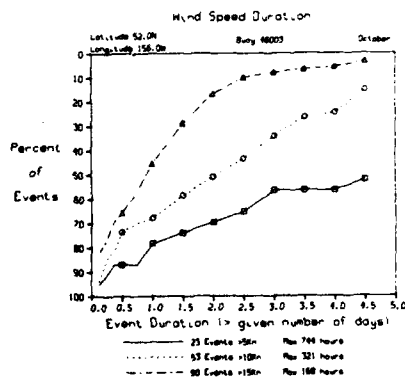
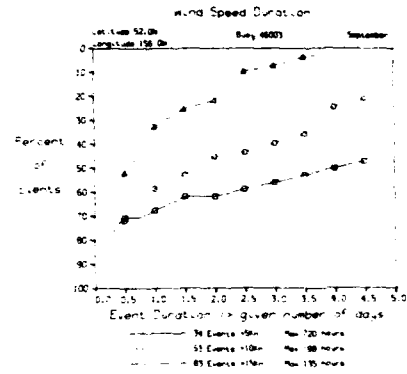
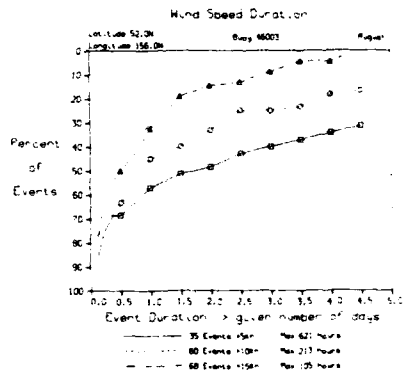
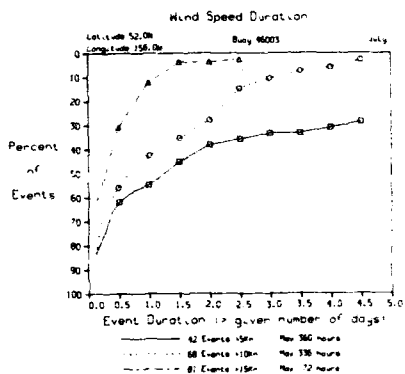


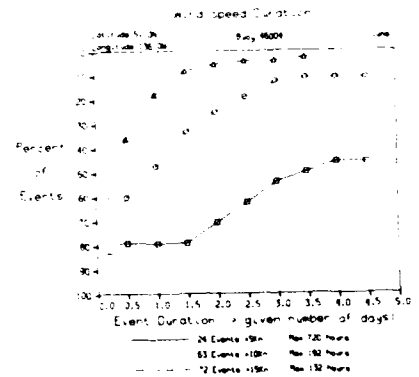
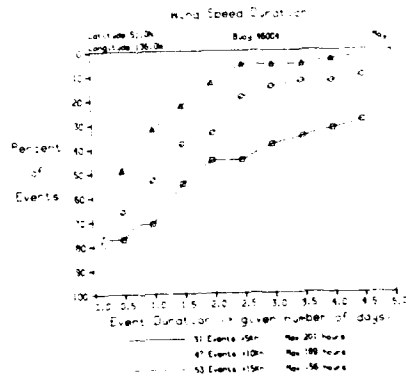
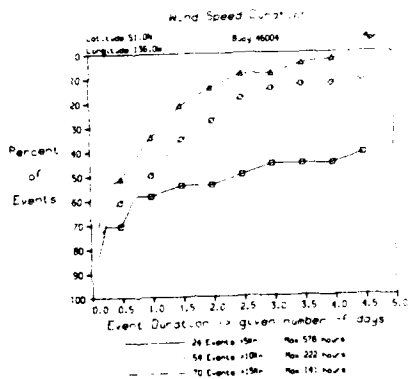
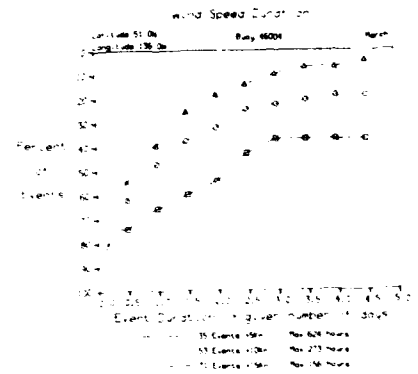
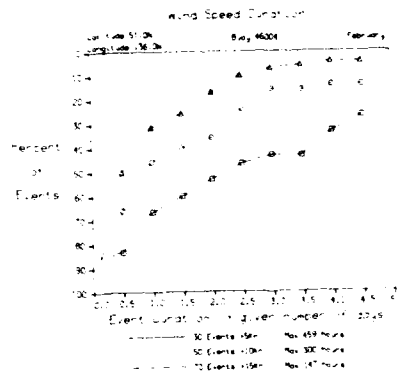
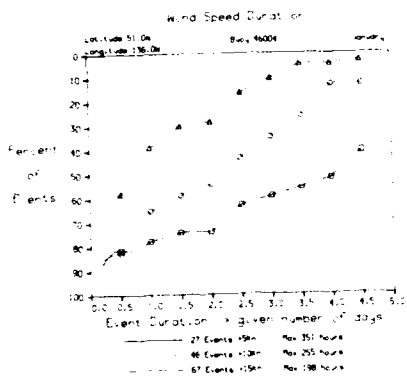


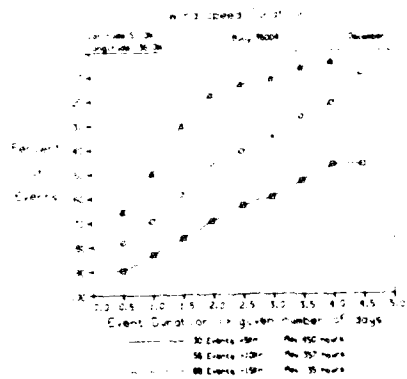
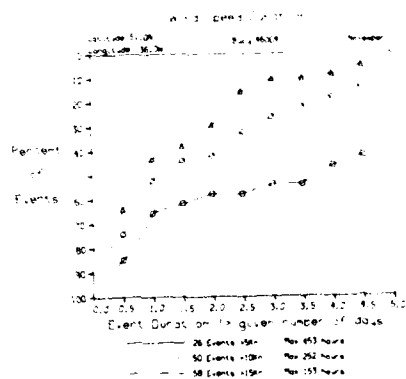
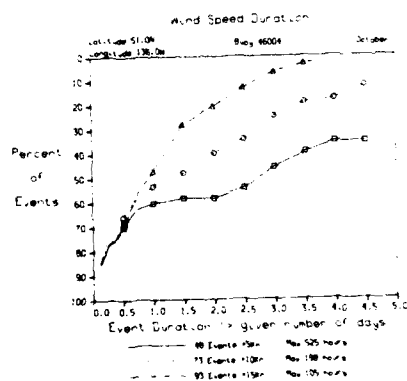
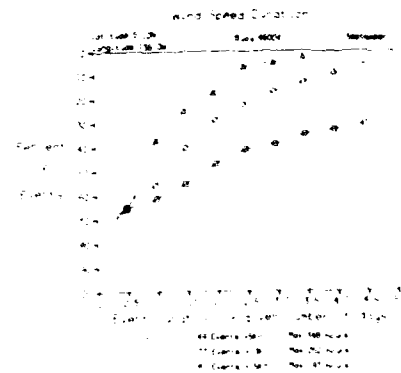
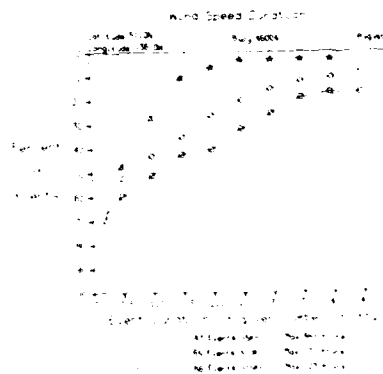
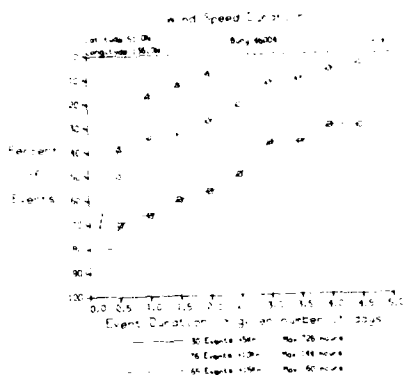


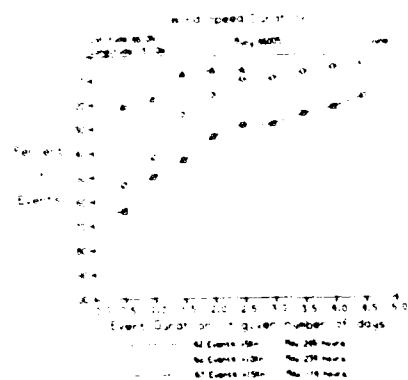
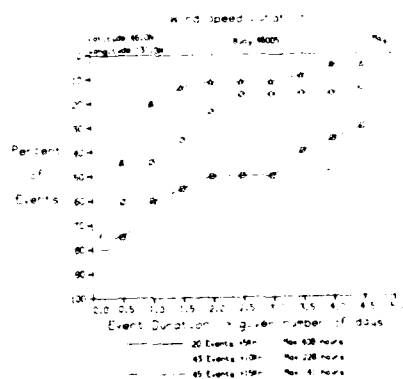
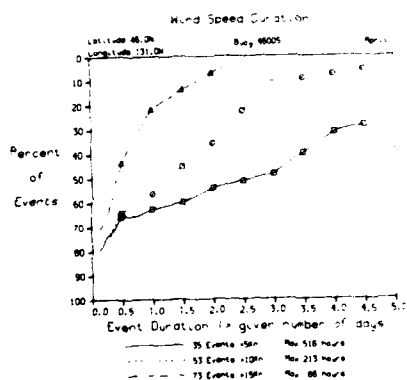
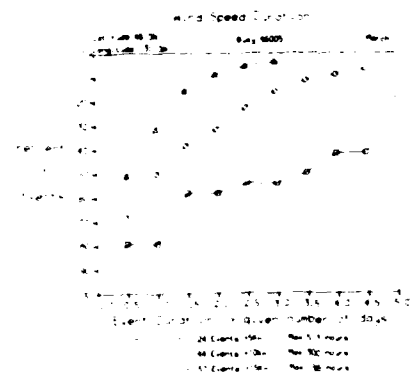
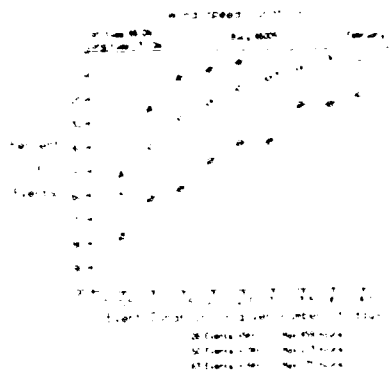
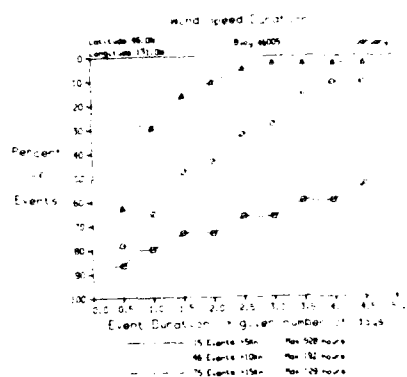


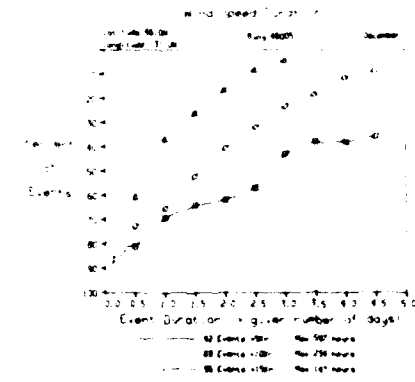
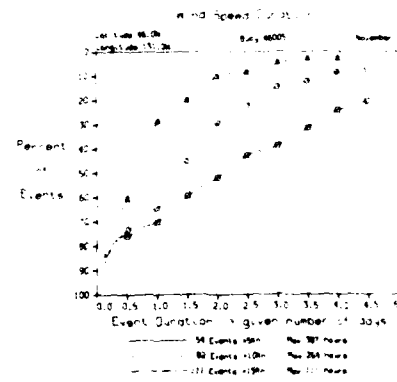
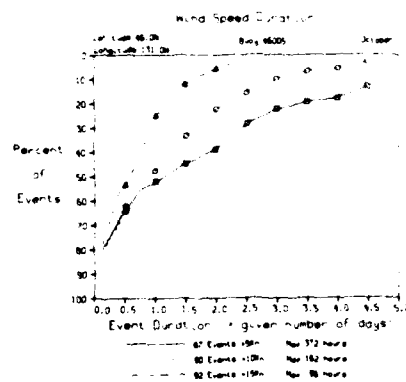
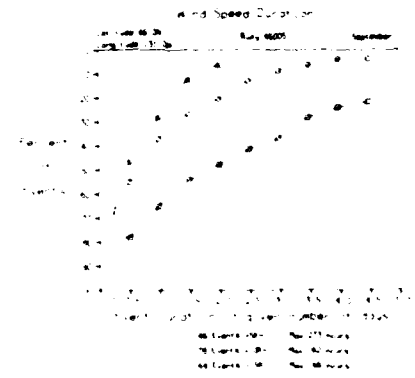
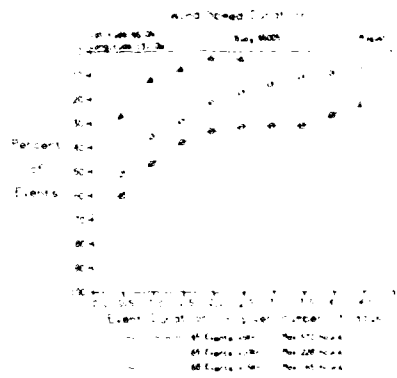
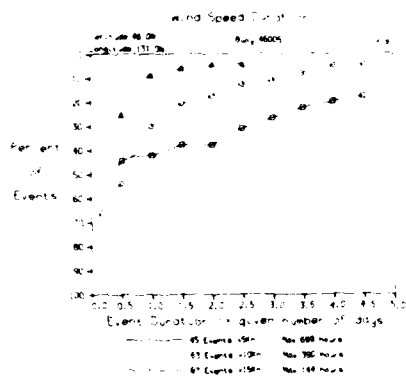


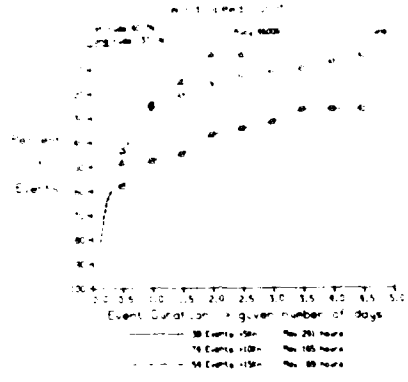
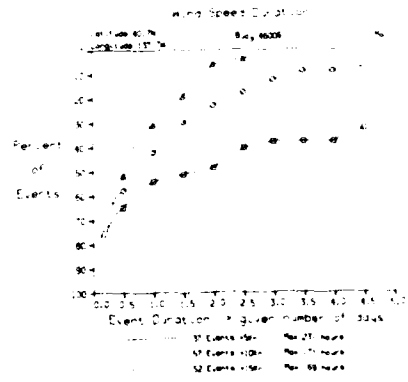
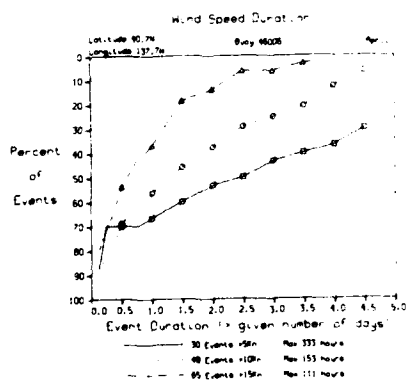
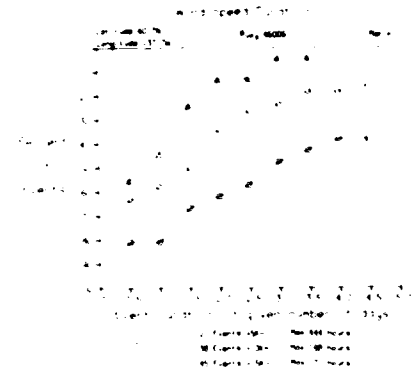
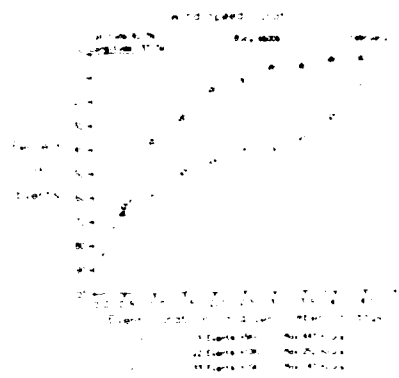
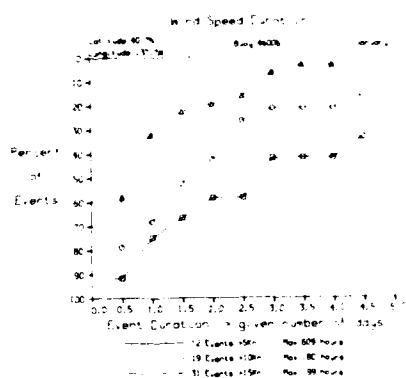


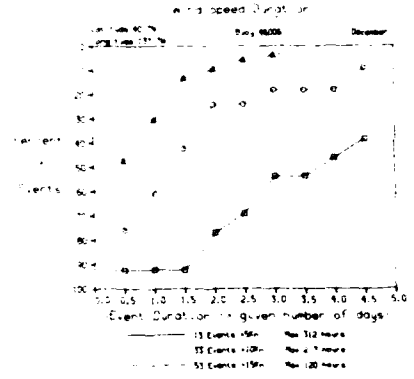
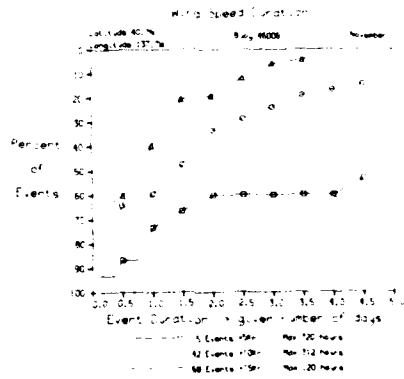
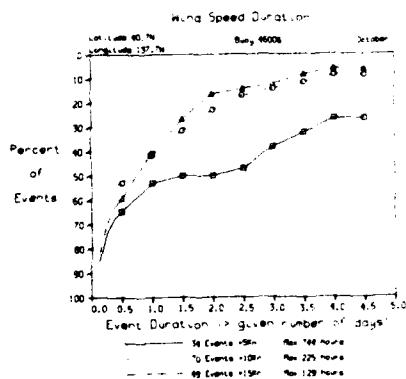
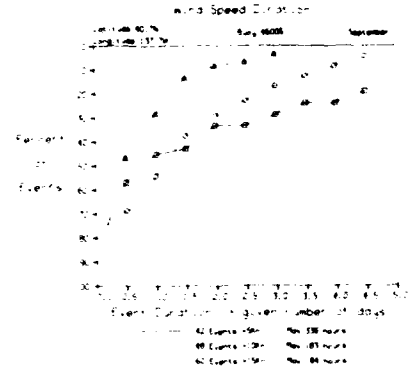
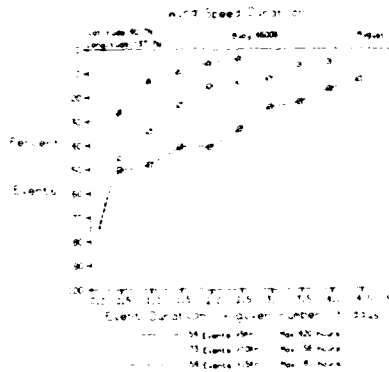
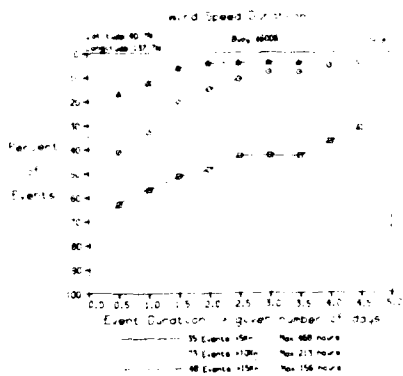


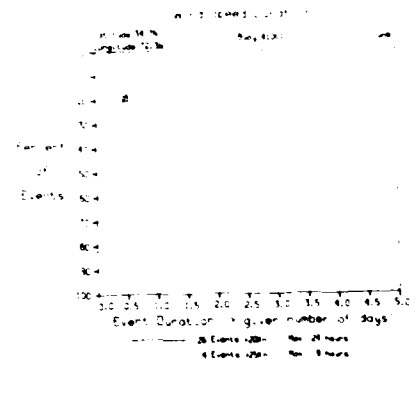
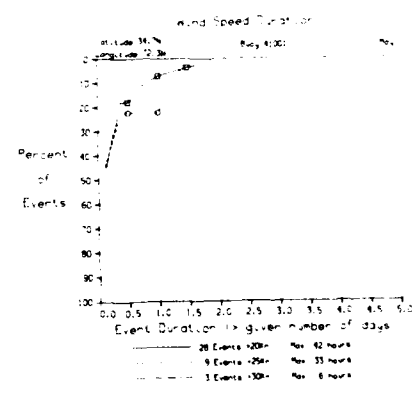
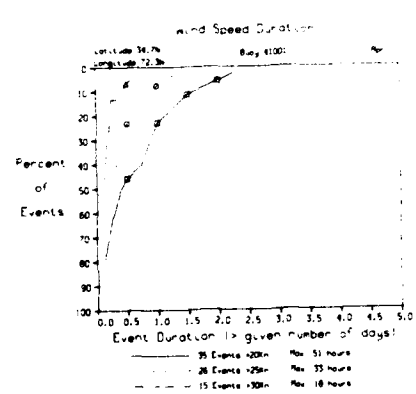
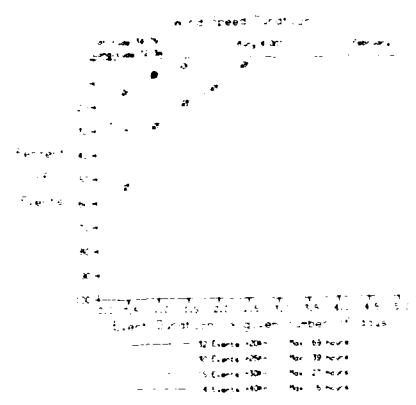
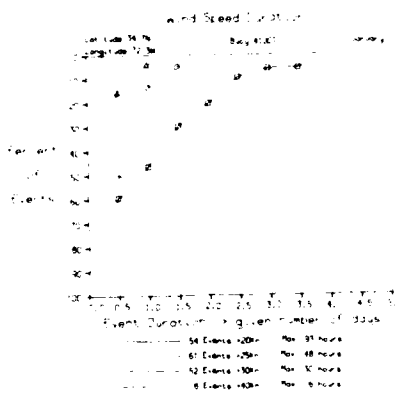


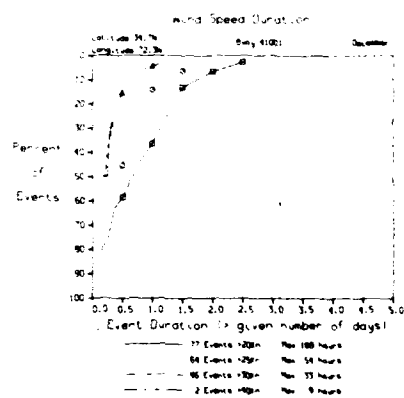
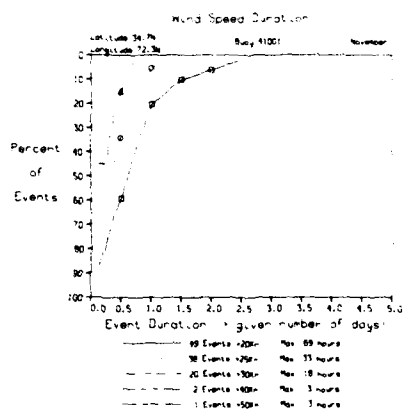
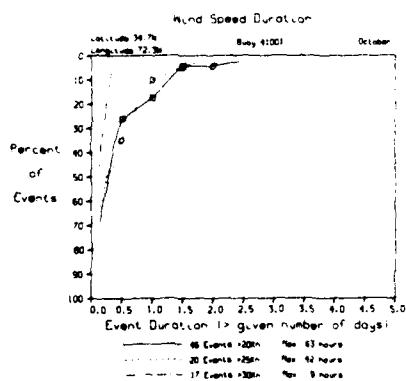
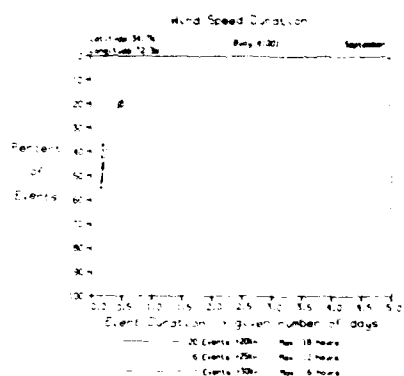
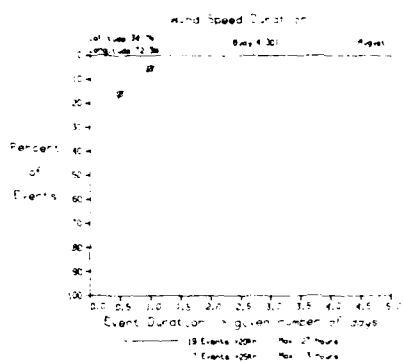
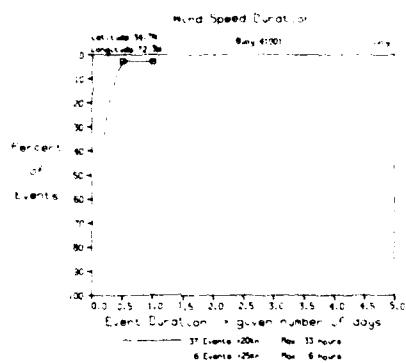


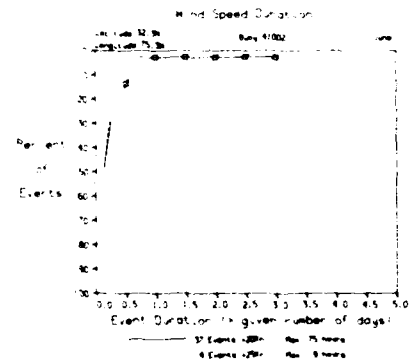
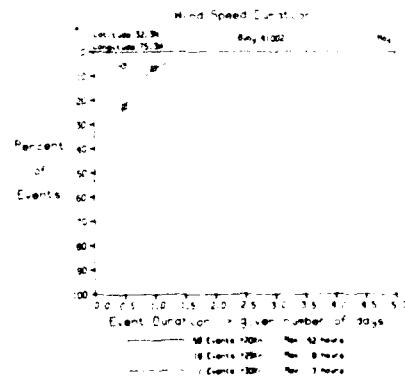
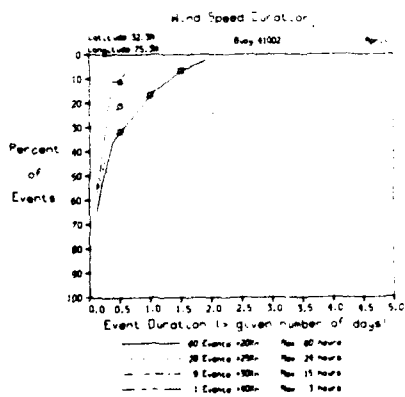
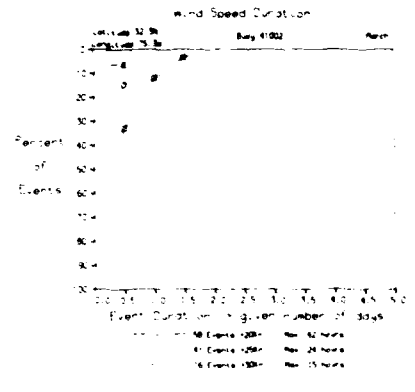
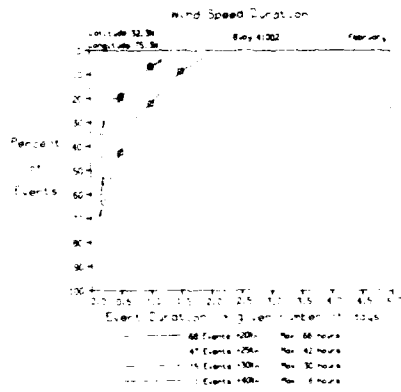
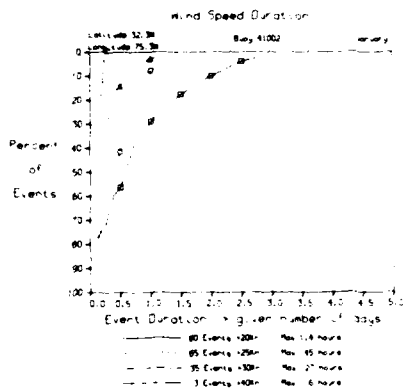


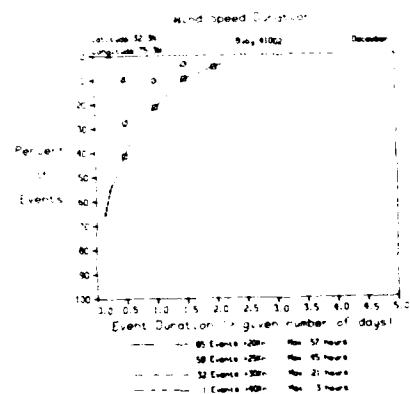
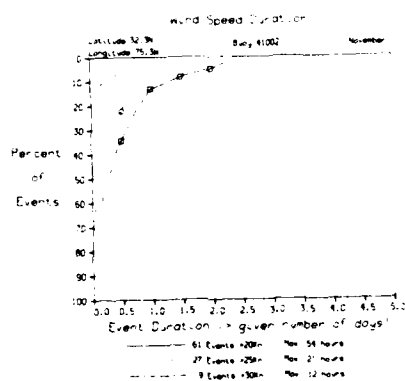
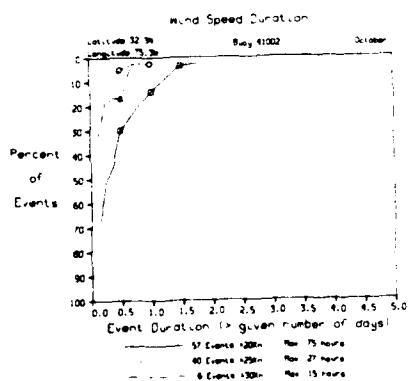
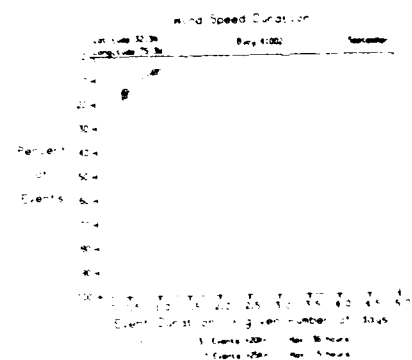
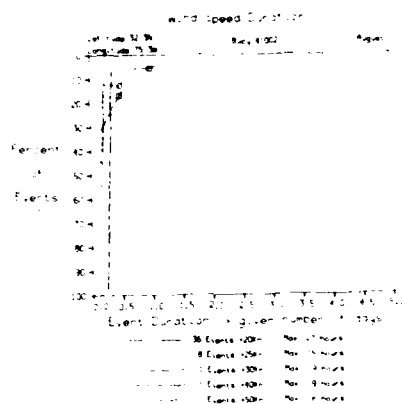
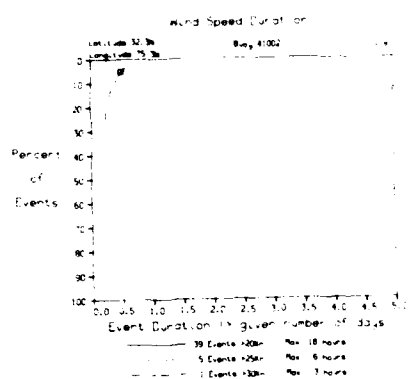


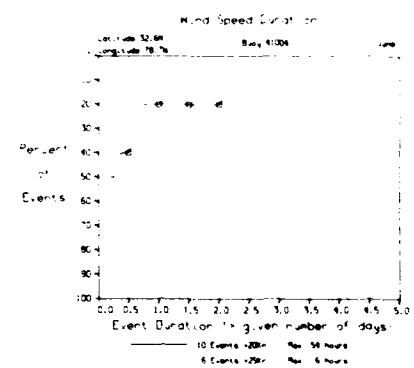
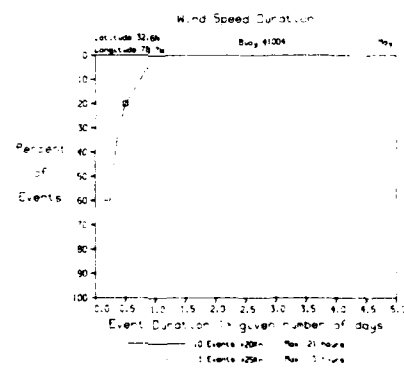
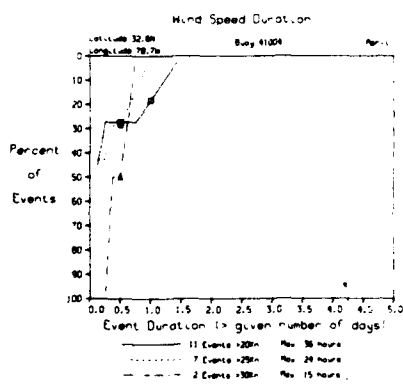
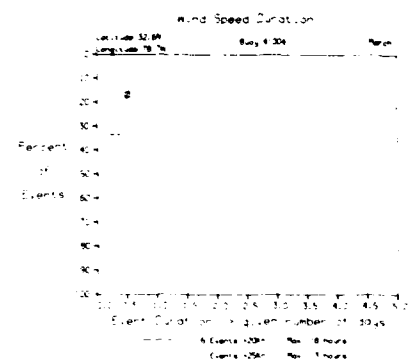
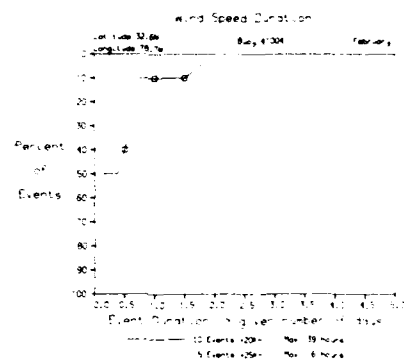
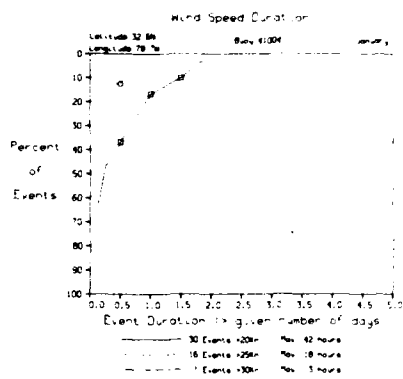


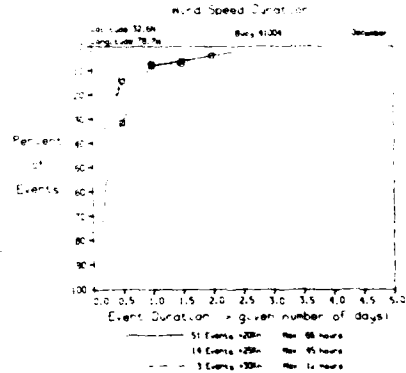
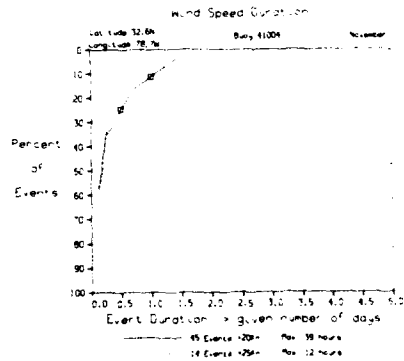
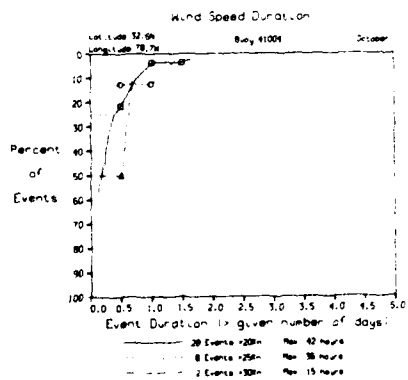
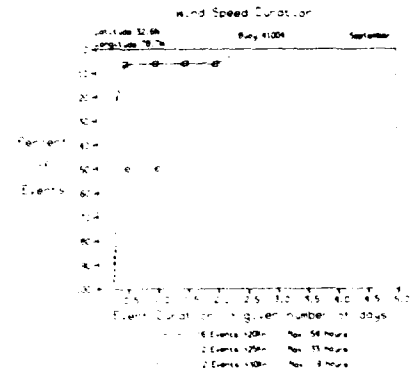
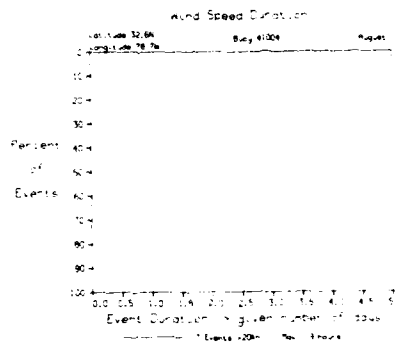
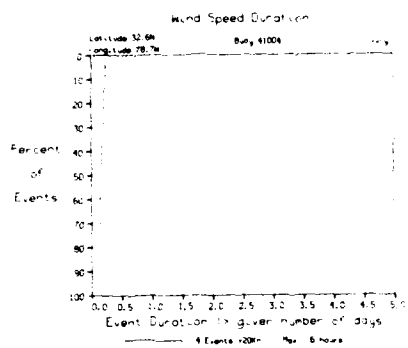


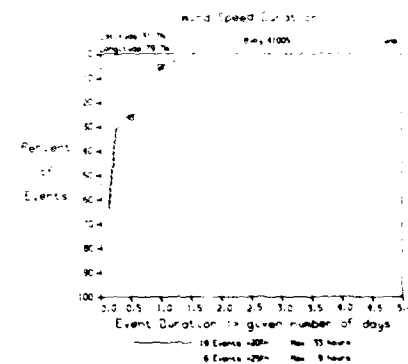
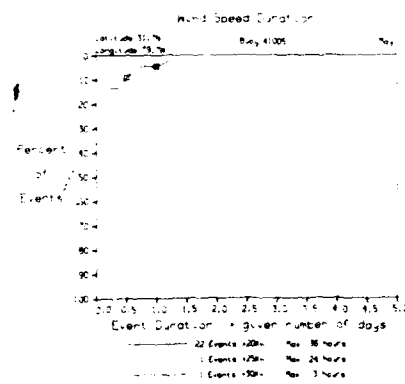
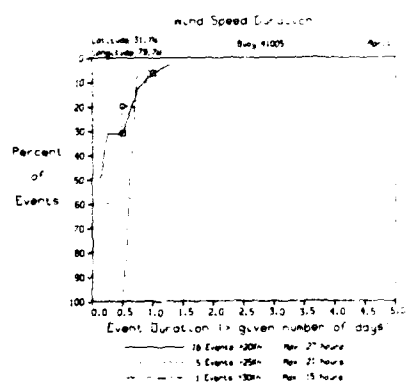
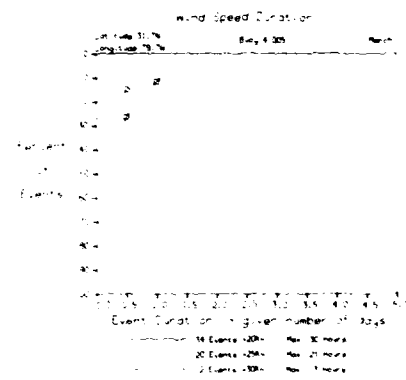
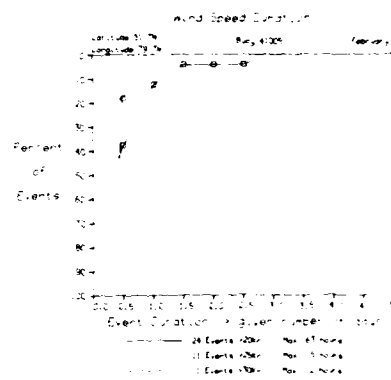
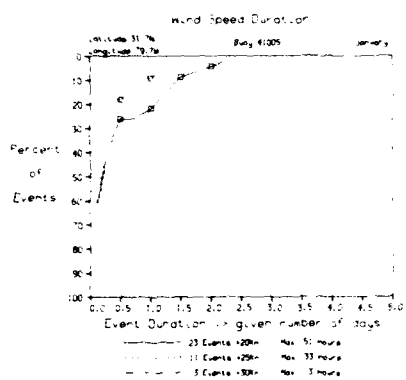


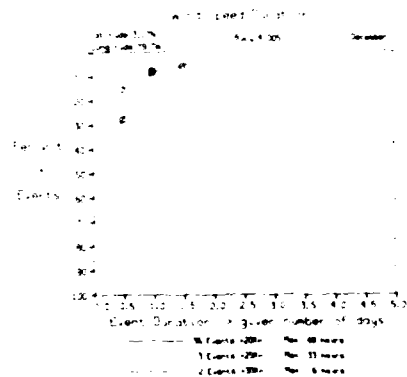
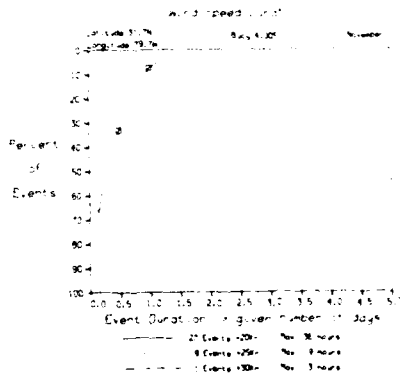
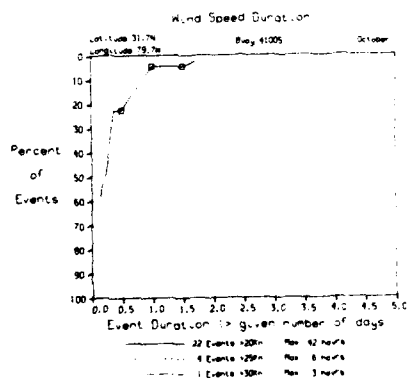
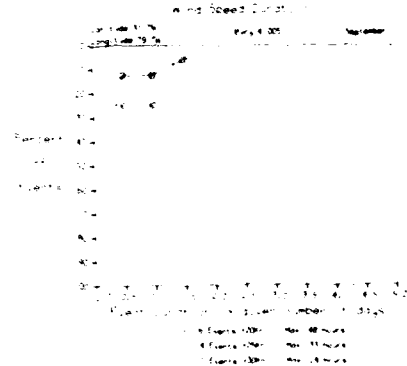
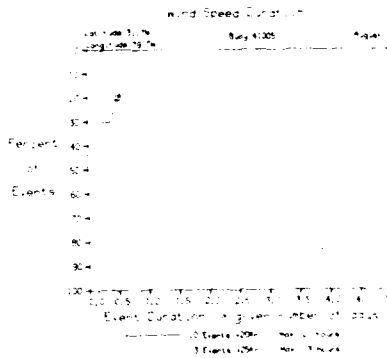
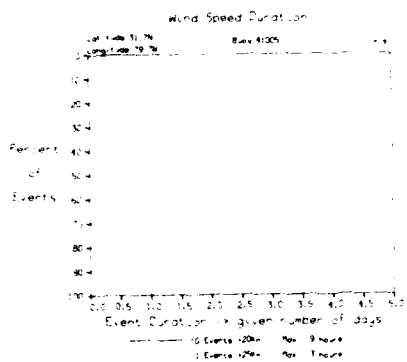


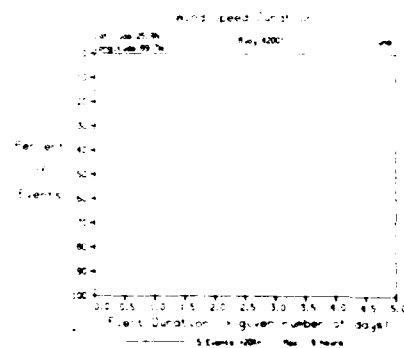
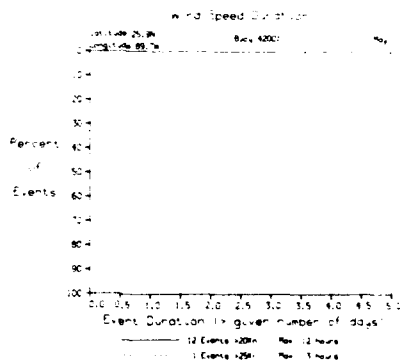
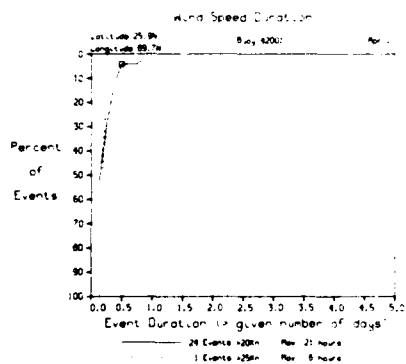
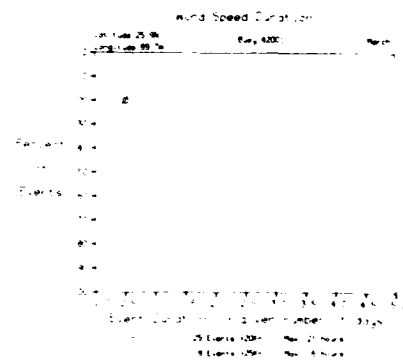
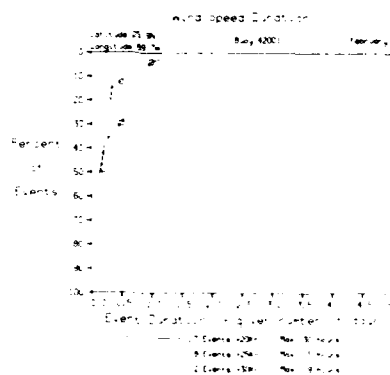
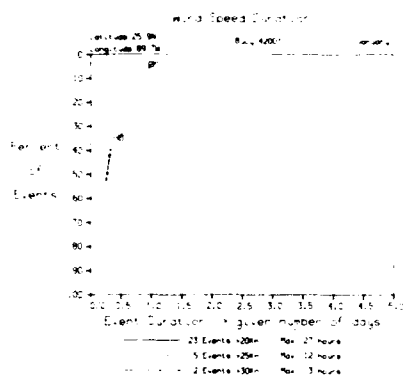


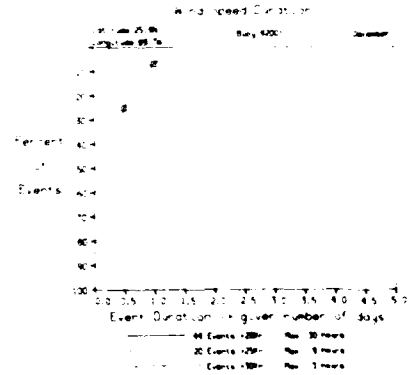
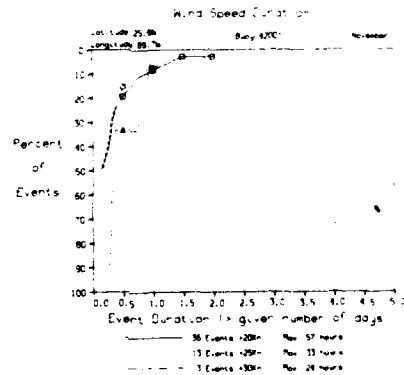
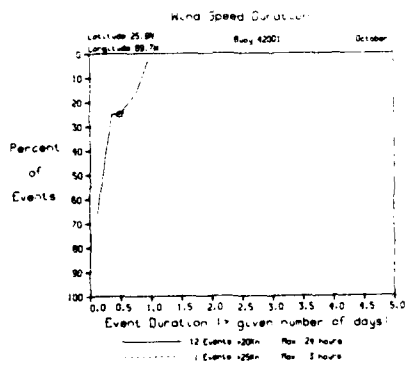
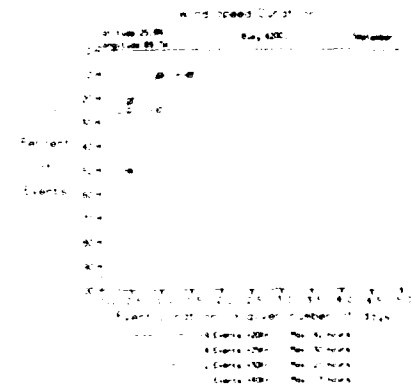
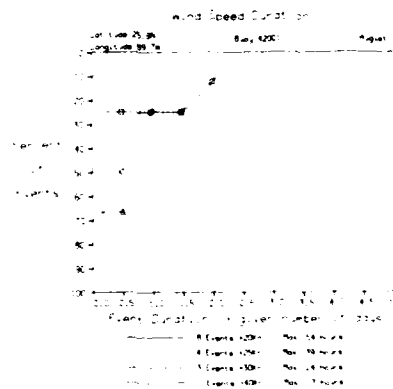
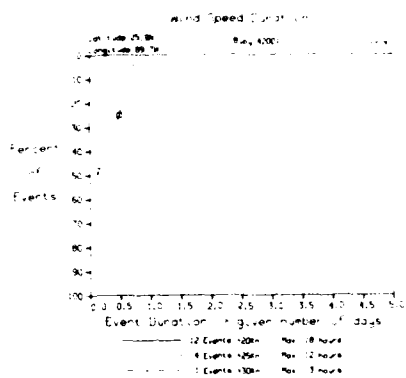


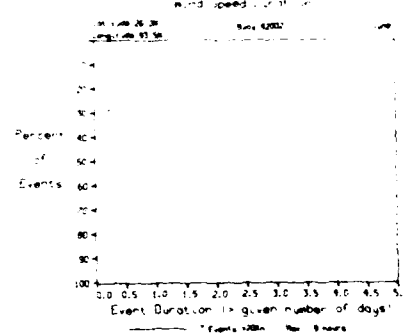
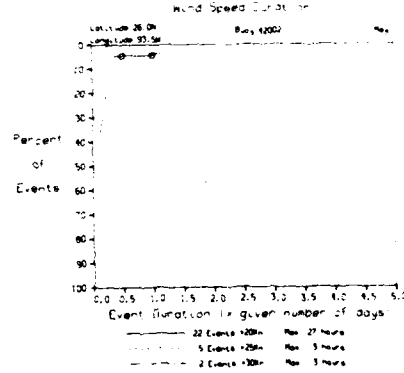
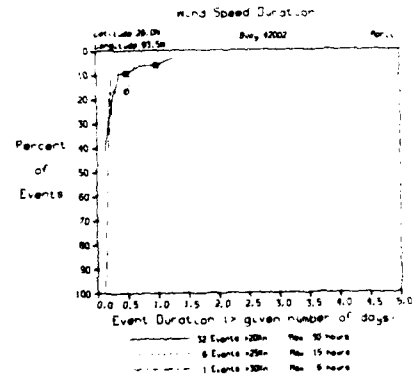
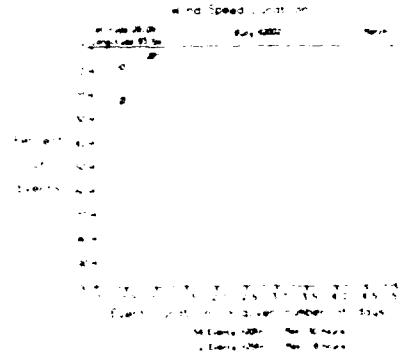
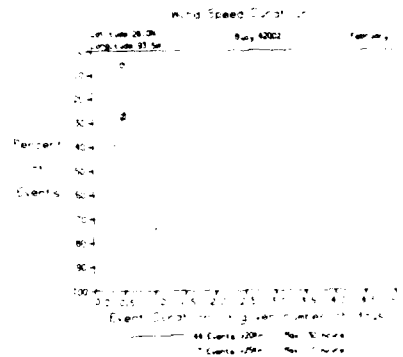
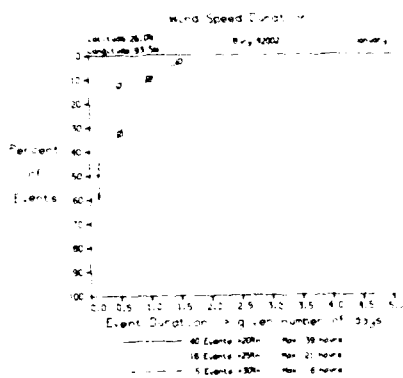


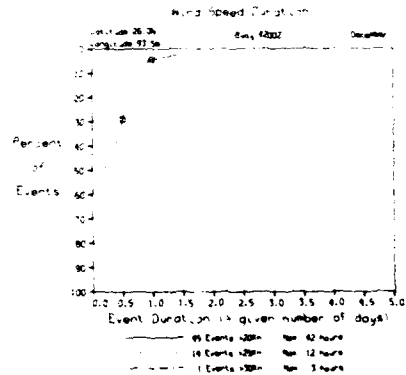
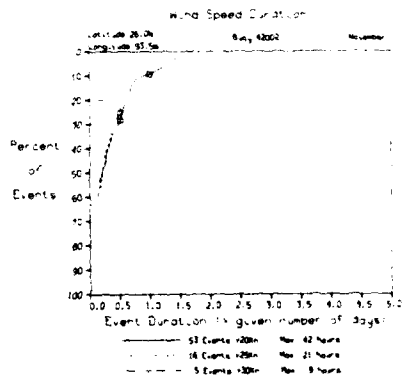
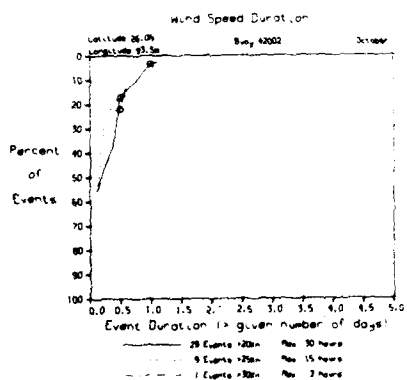
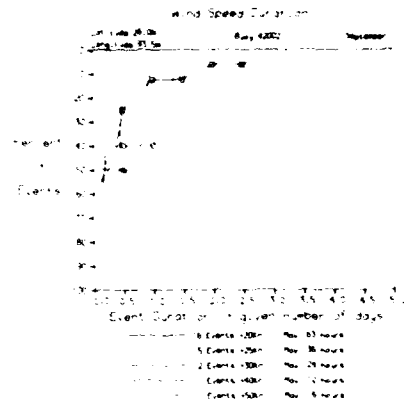
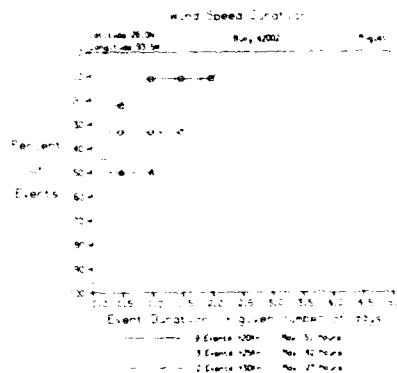
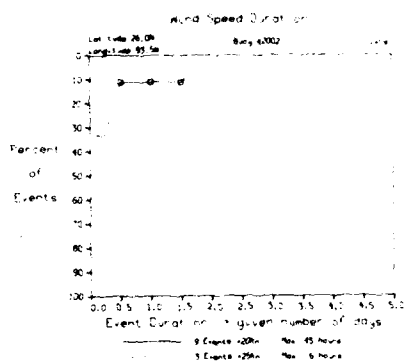


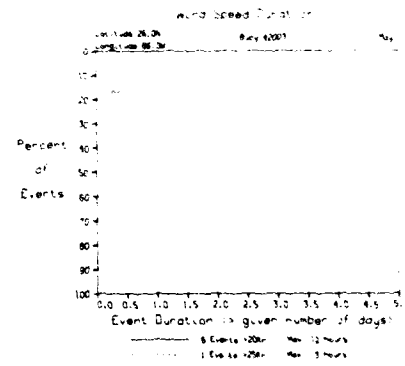
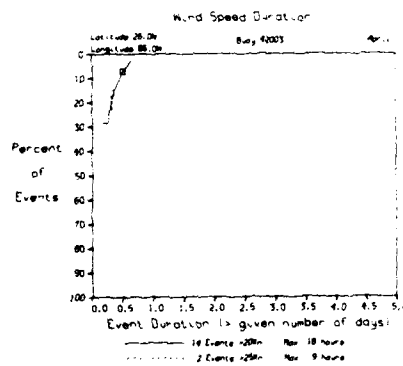
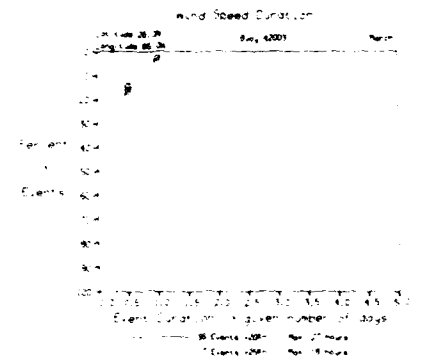
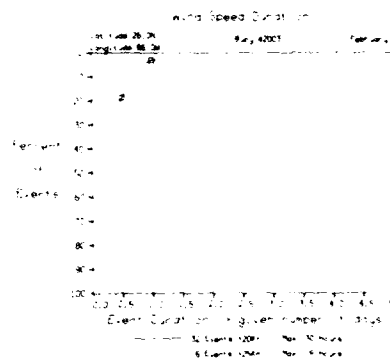
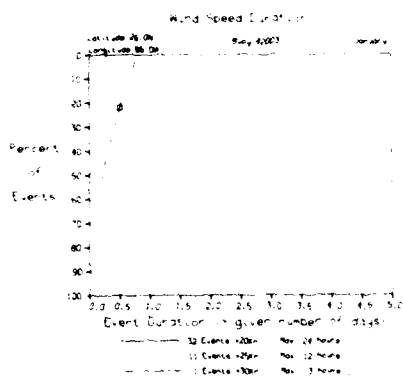


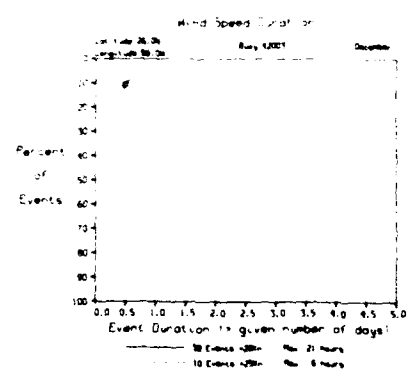
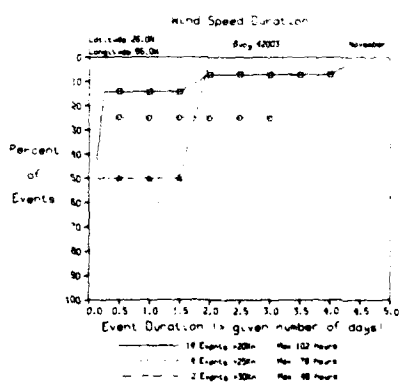
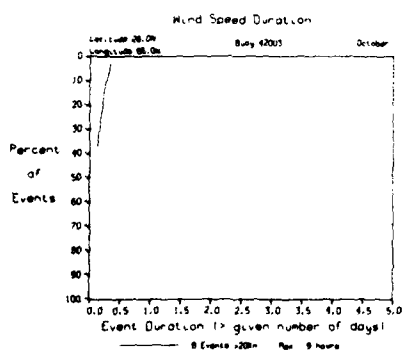
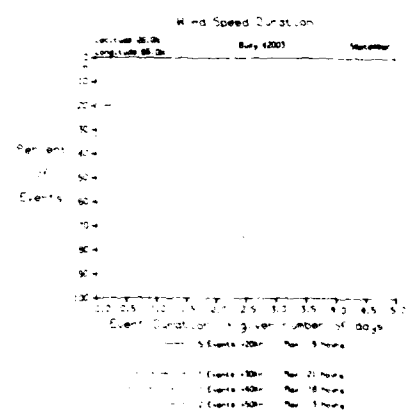
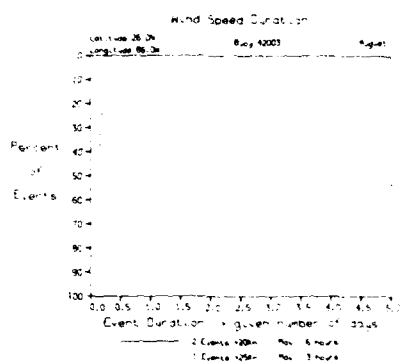
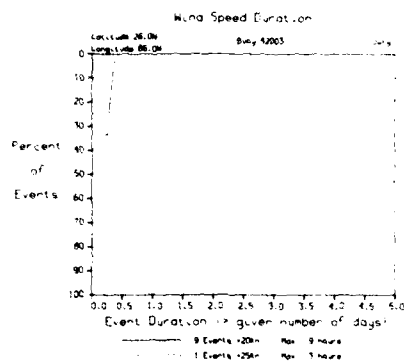


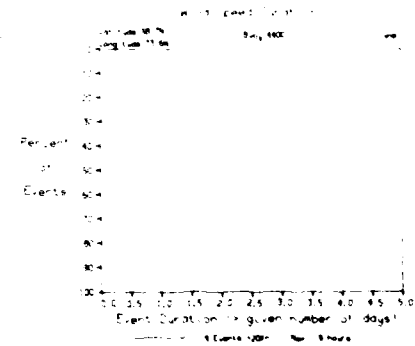
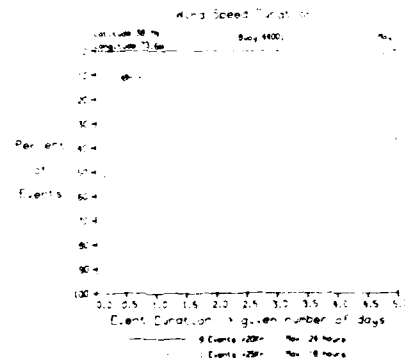
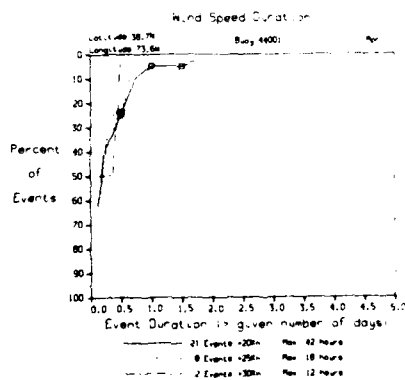
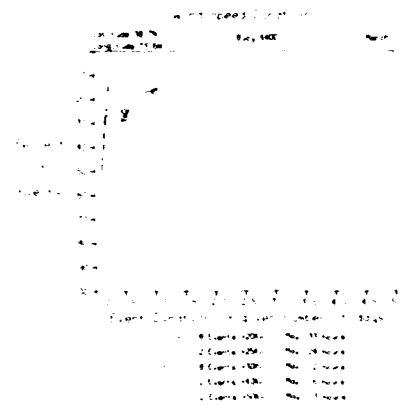
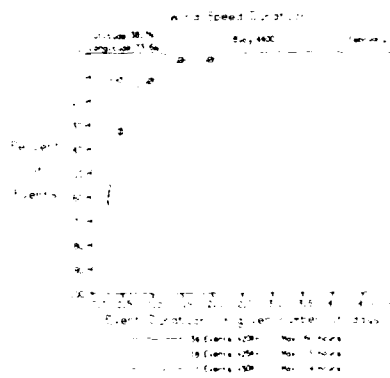
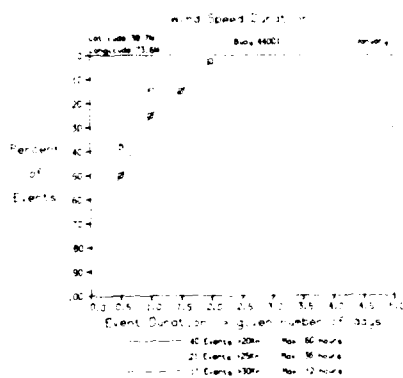


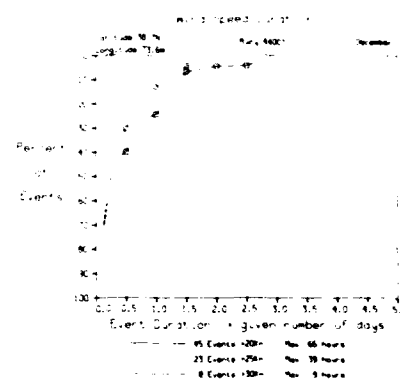
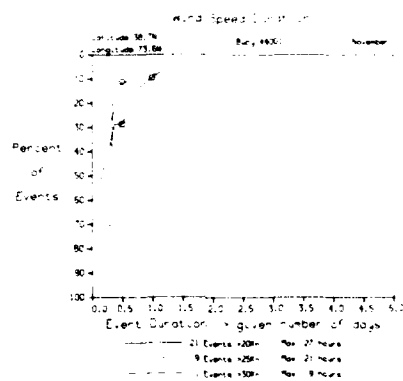
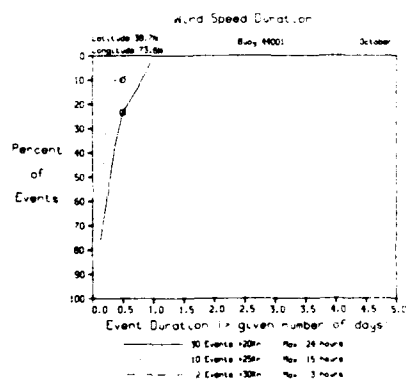
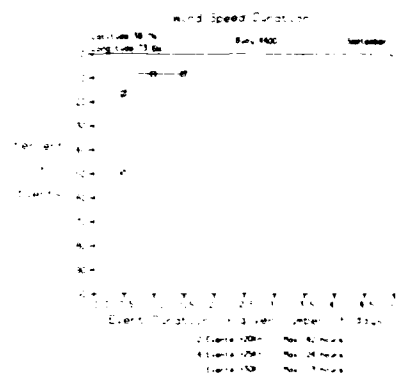
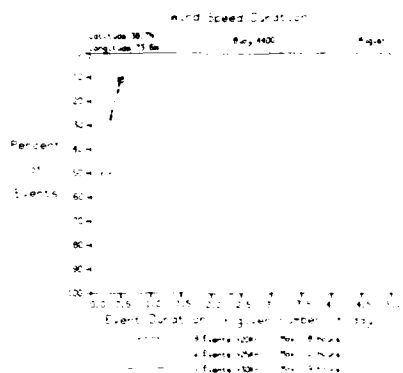
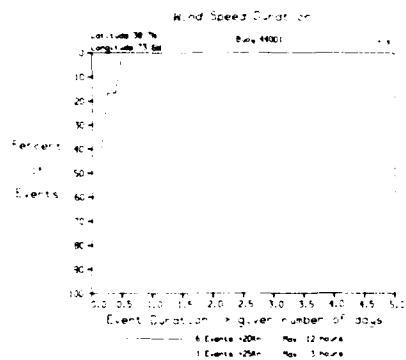


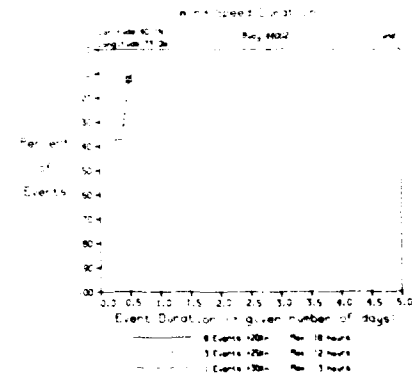
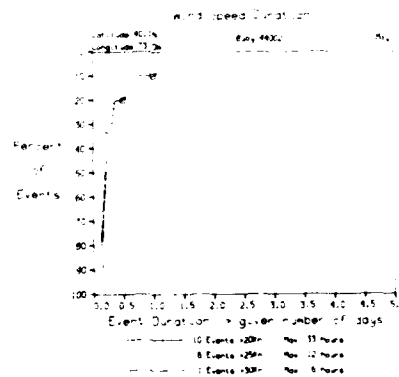
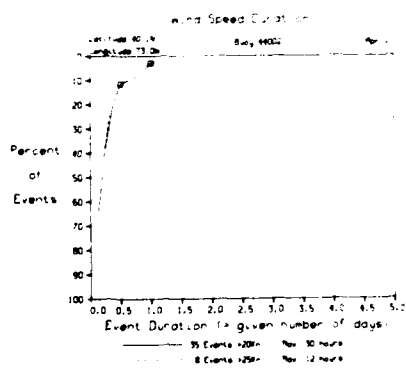
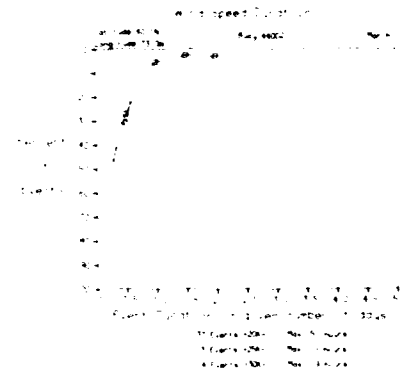
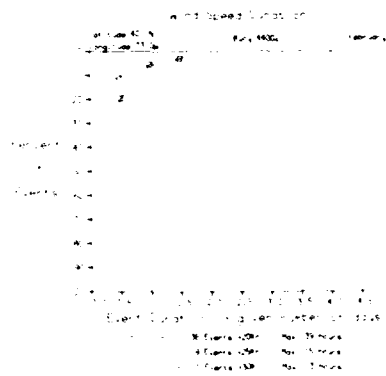
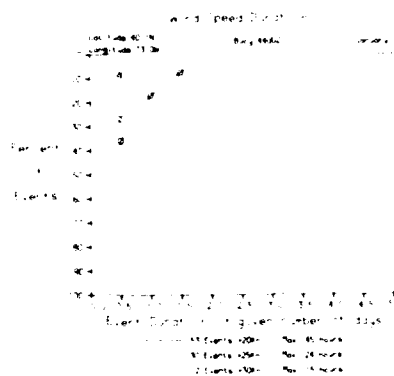


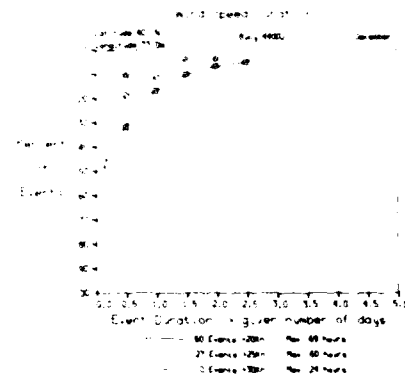
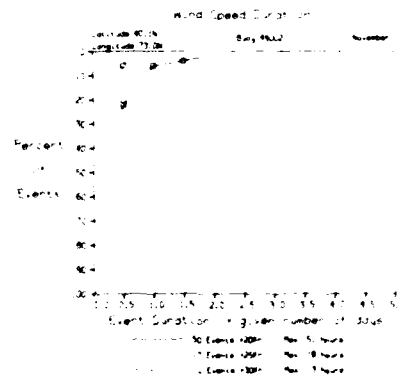
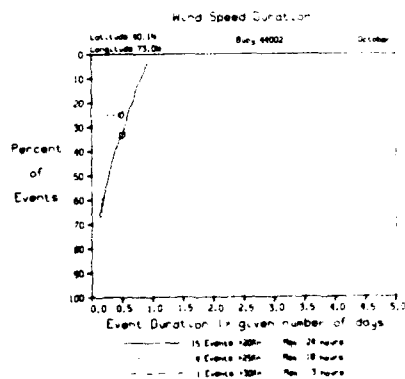
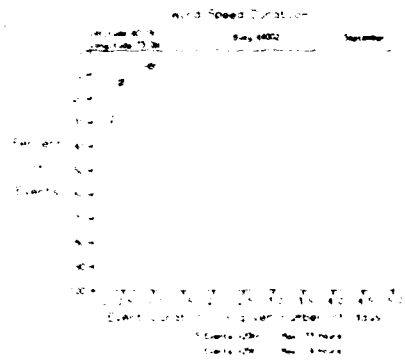
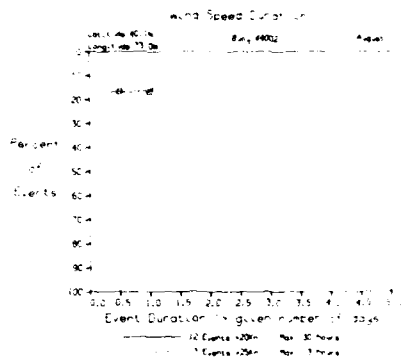
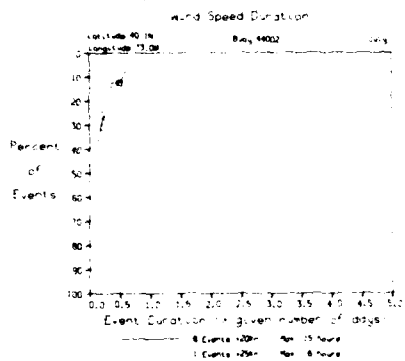


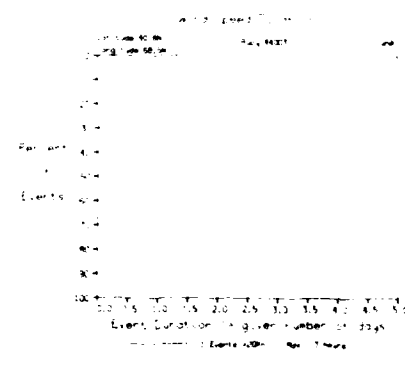
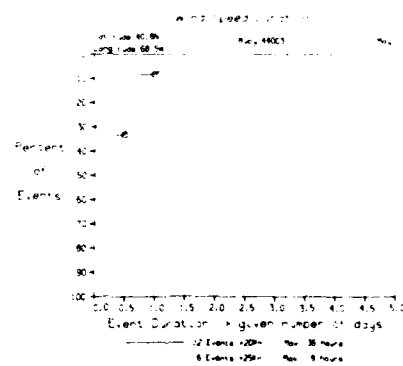
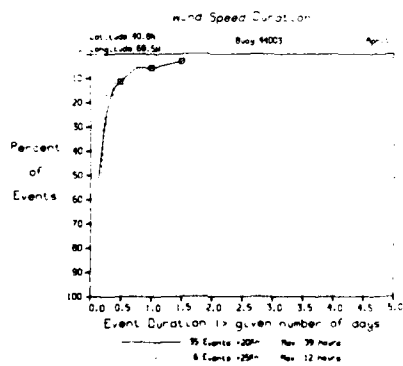
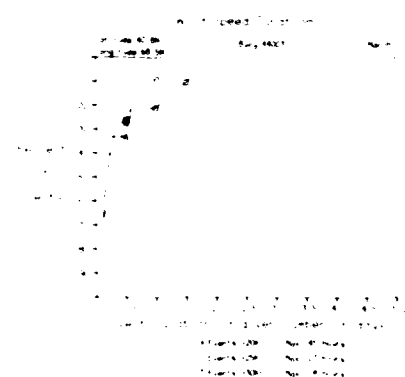
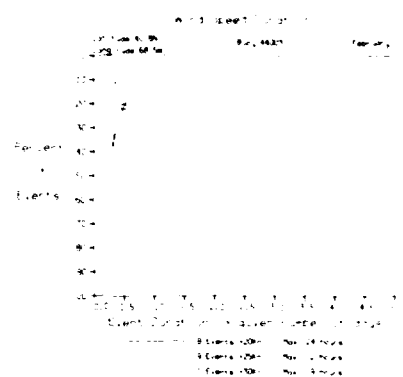
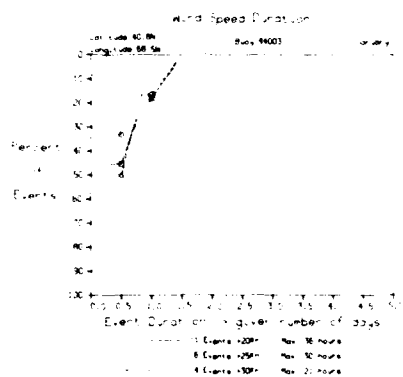


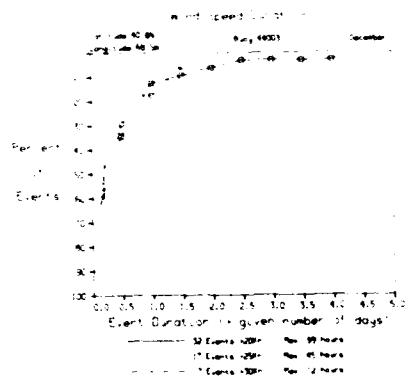
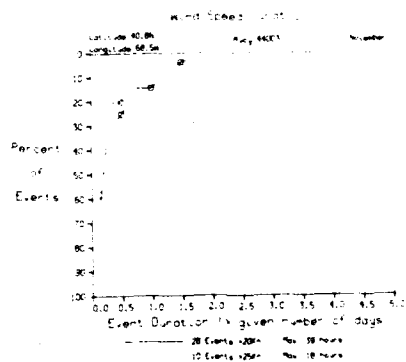
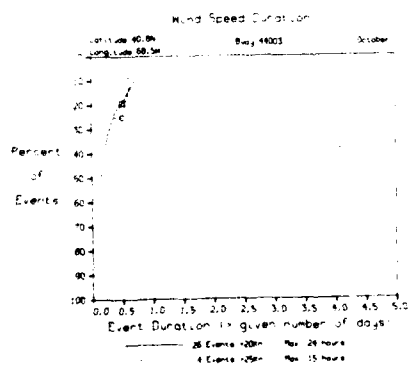
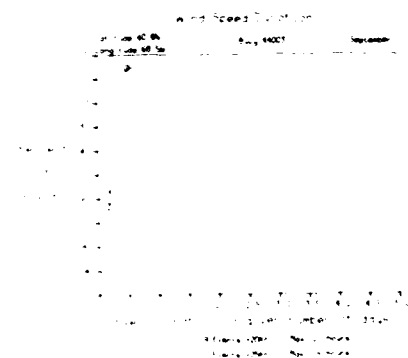
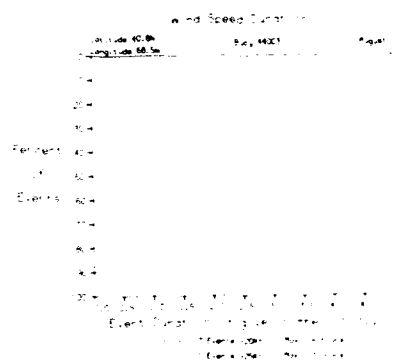


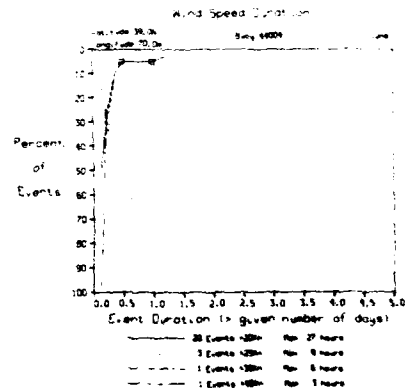
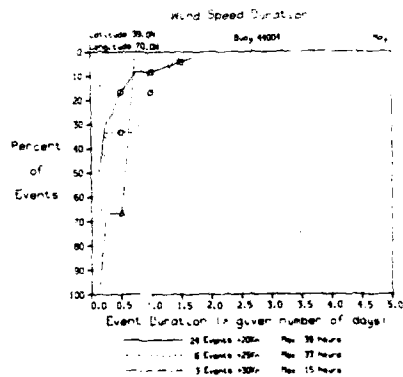
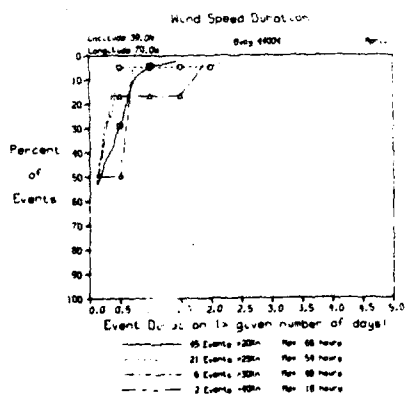
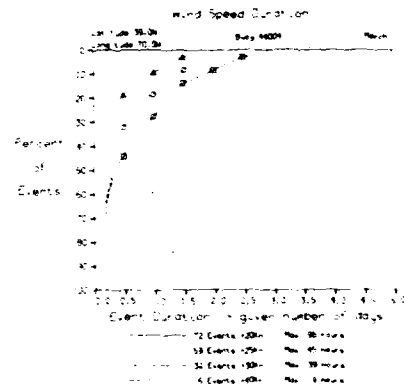
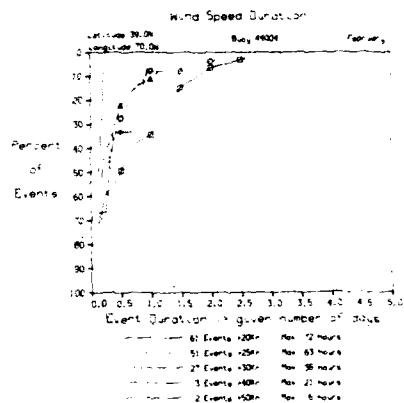
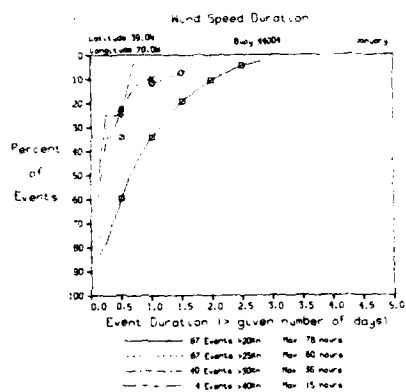


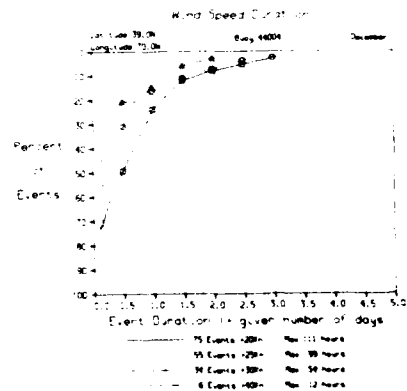
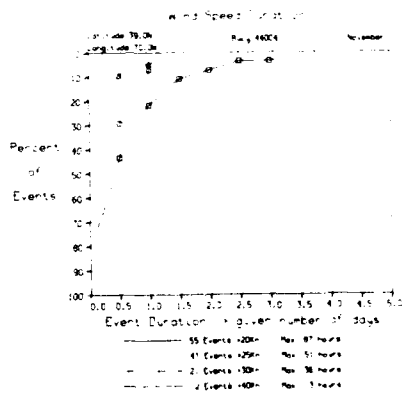
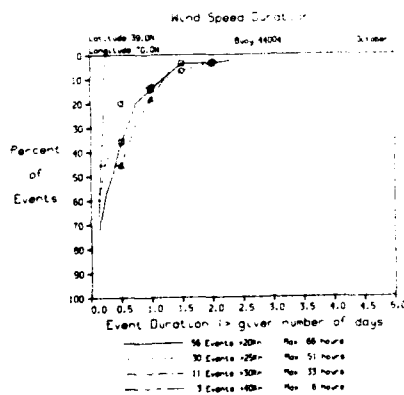
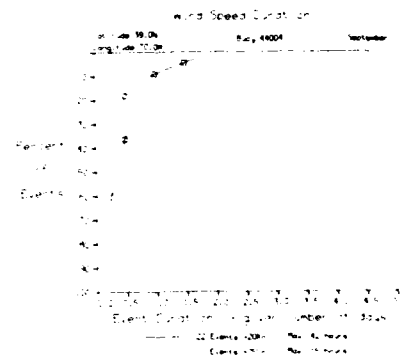
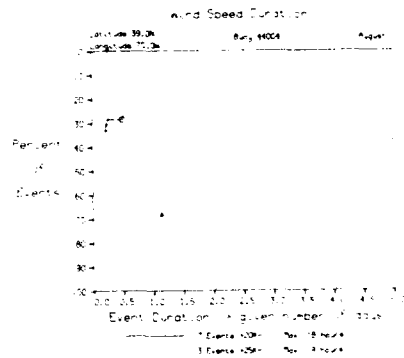
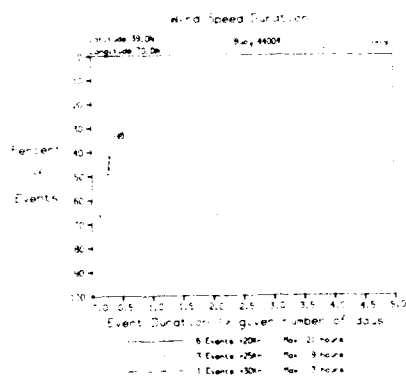


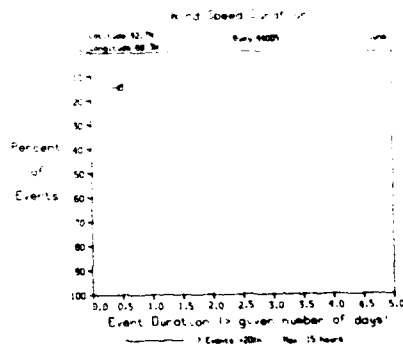
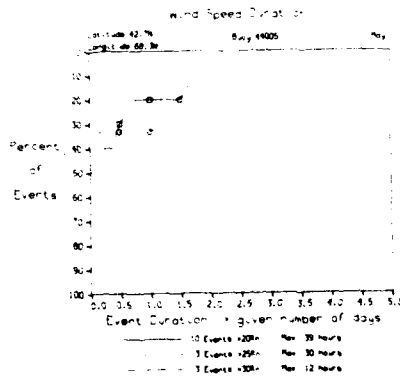
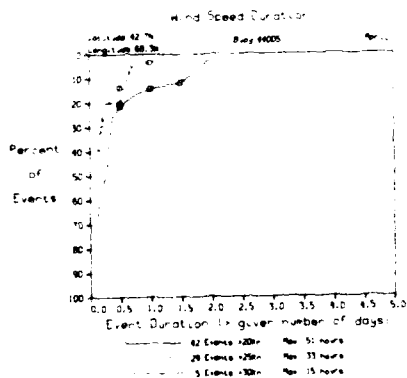
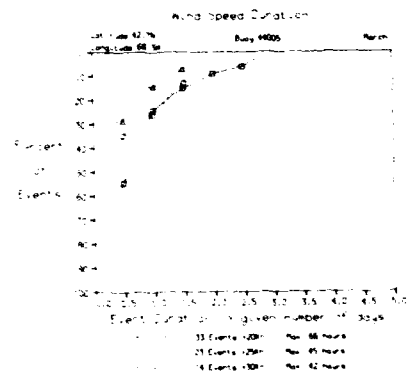
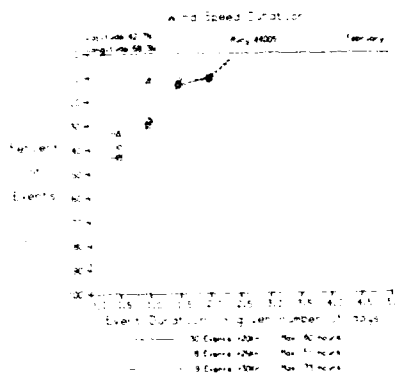
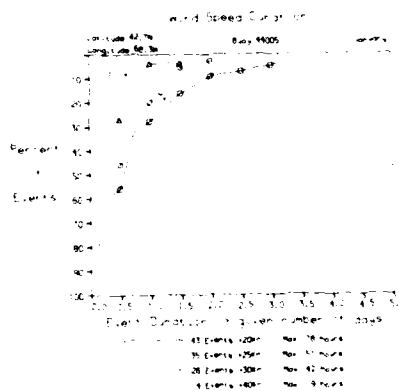


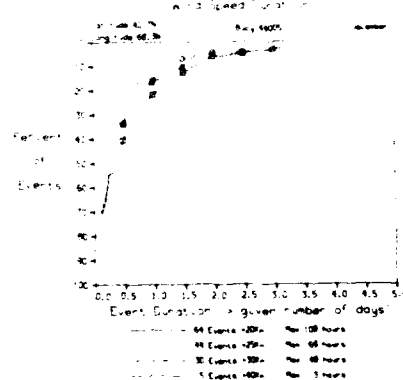
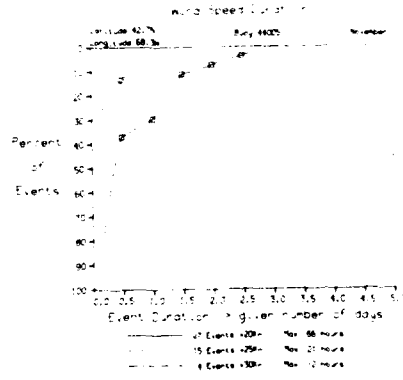
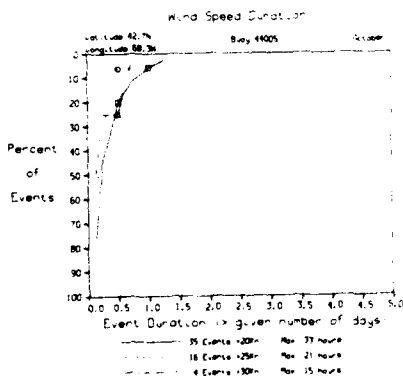
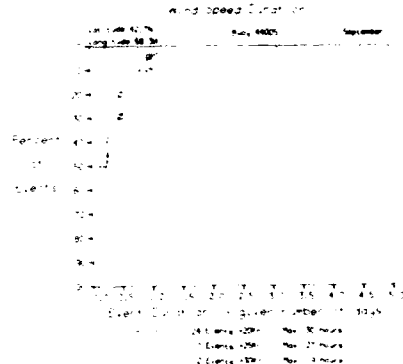
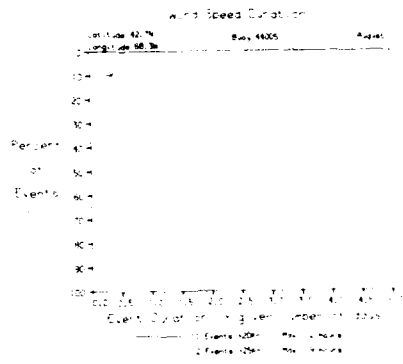
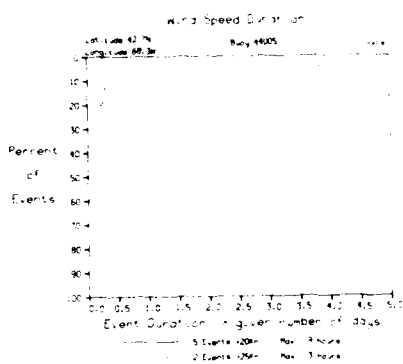












No Data Available

March

No Data Available

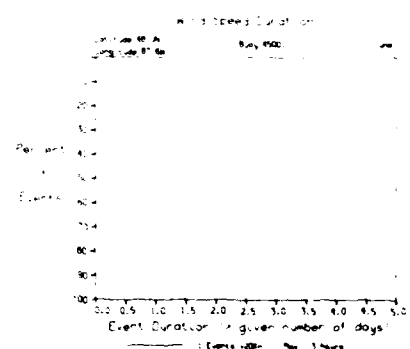
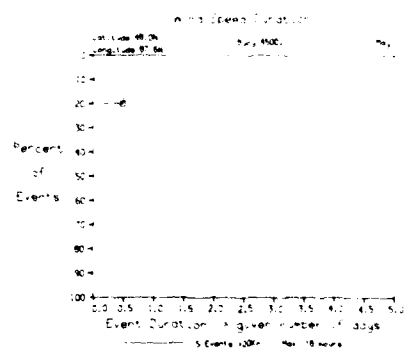
February

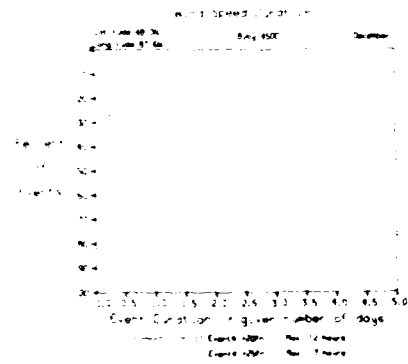
No Data Available

March

No Recurrences in

April



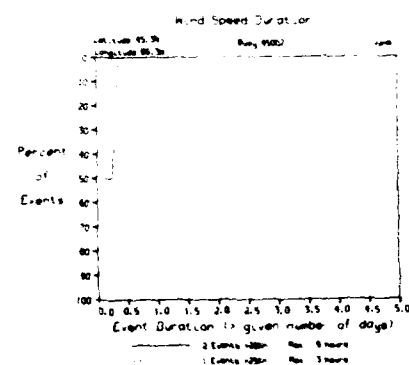
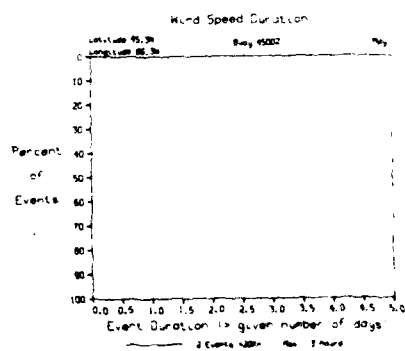


No Data Available for
January

No Data Available for
February

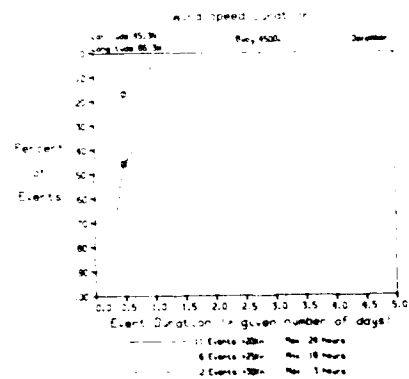
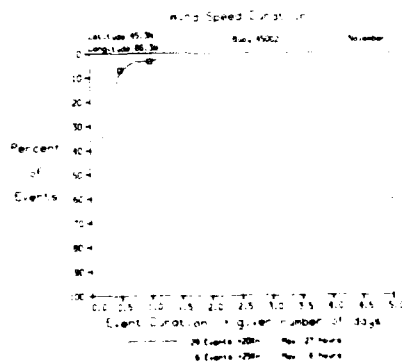
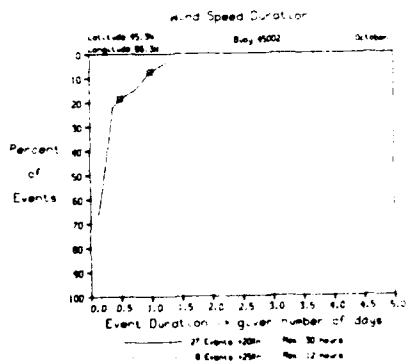
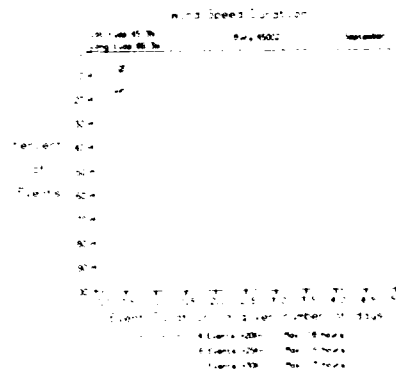
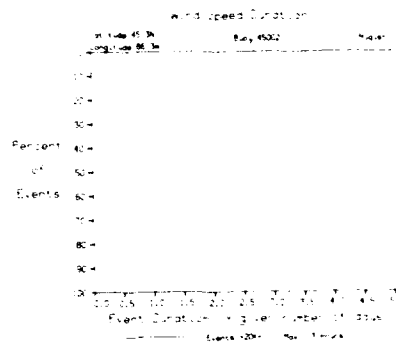
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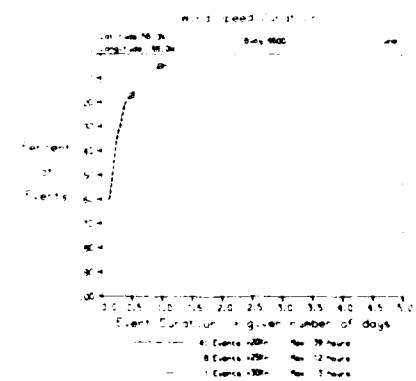
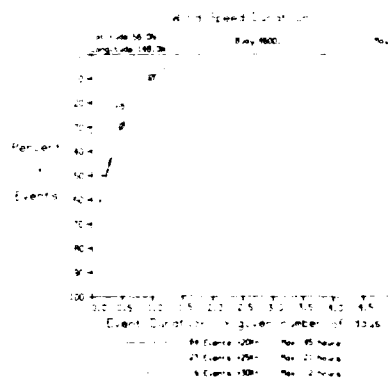
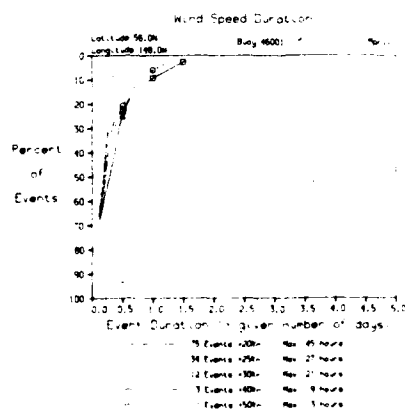
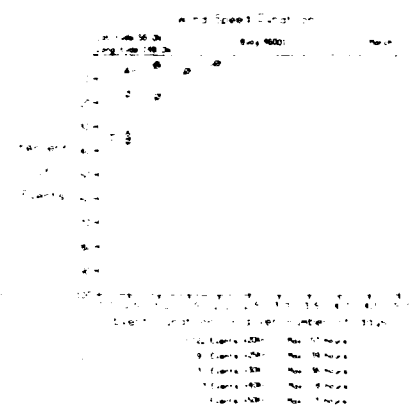
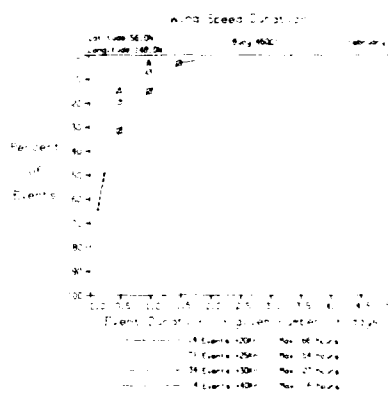
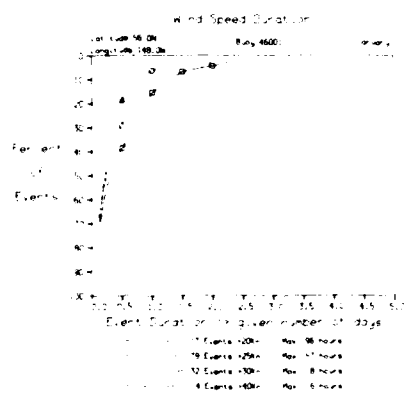
No Occurrences in
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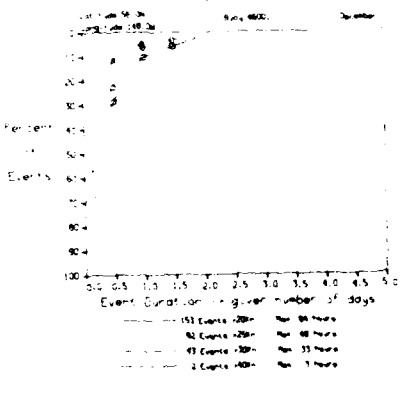
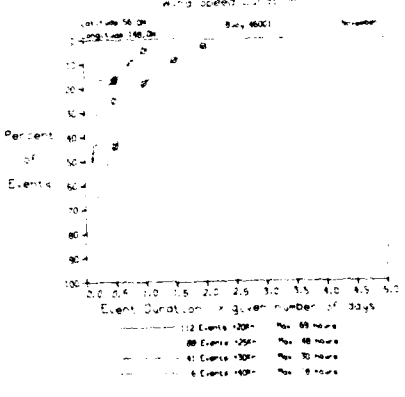
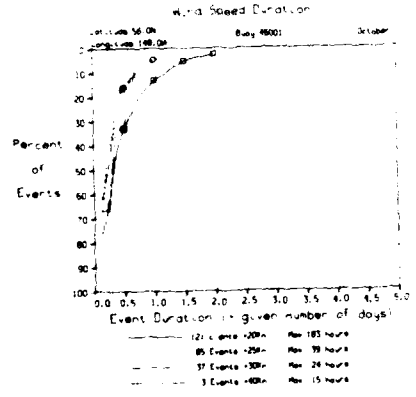
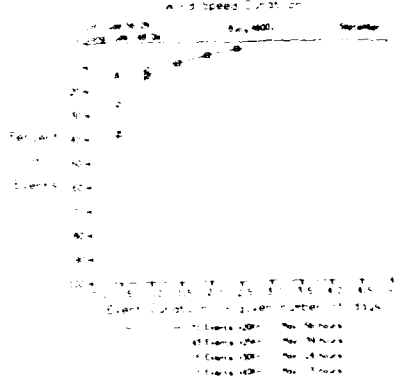
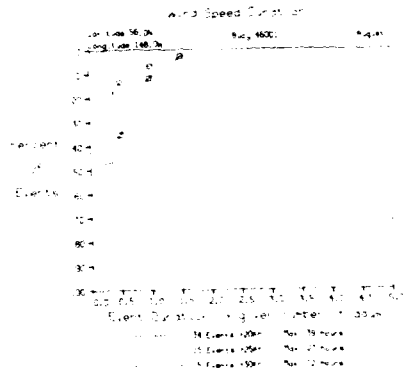
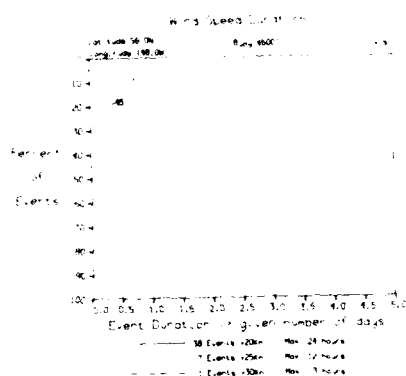


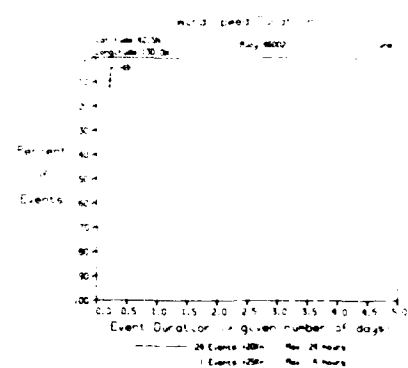
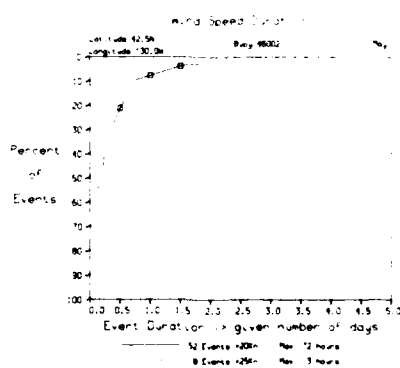
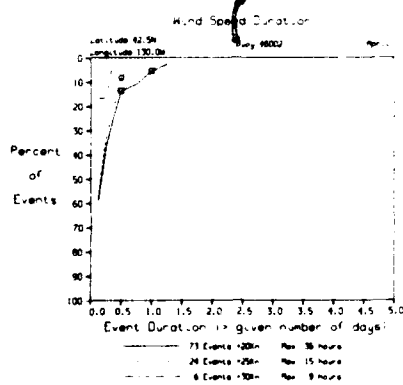
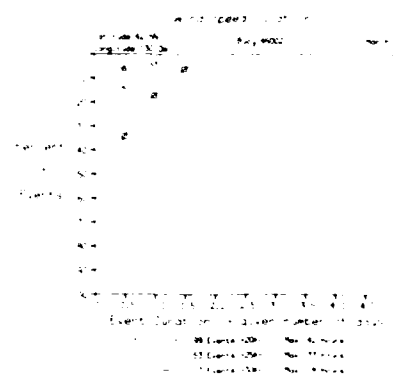
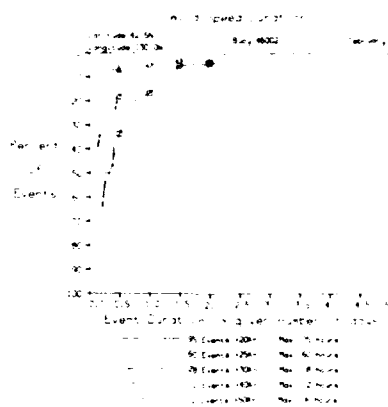
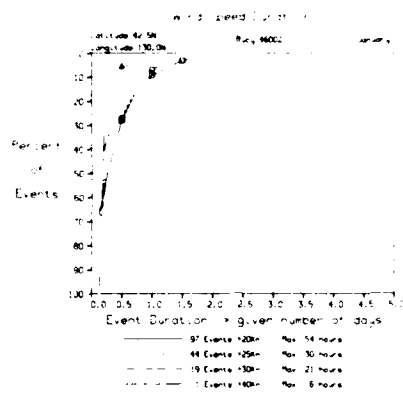
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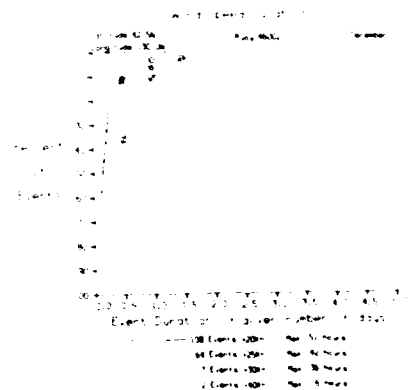
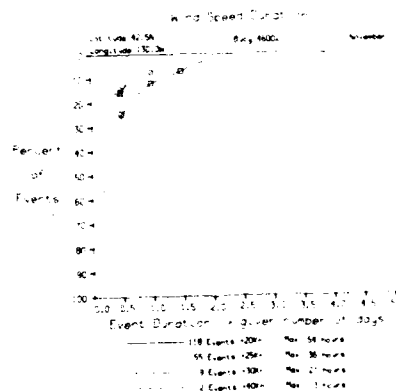
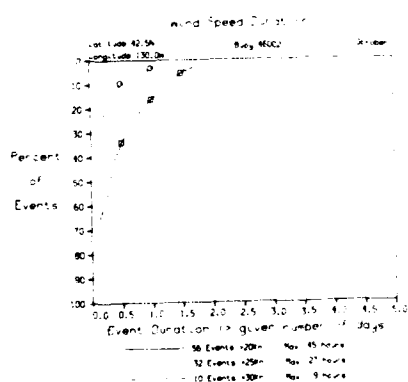
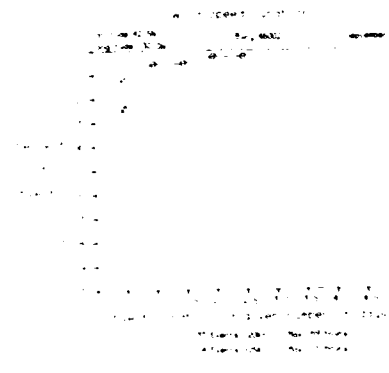
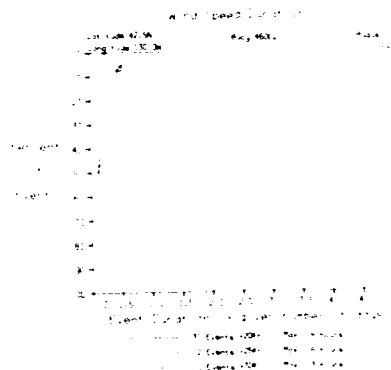
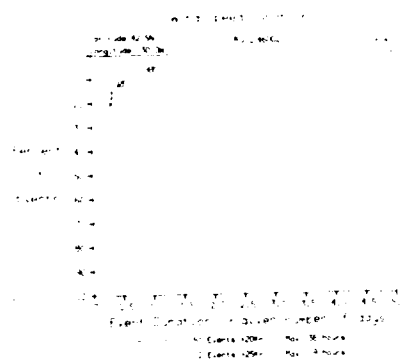
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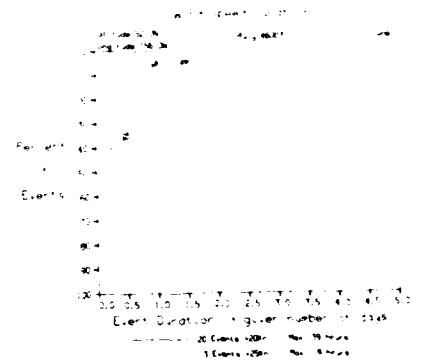
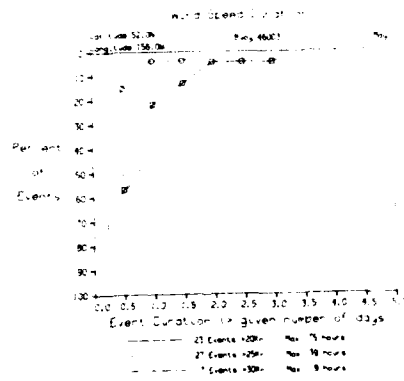
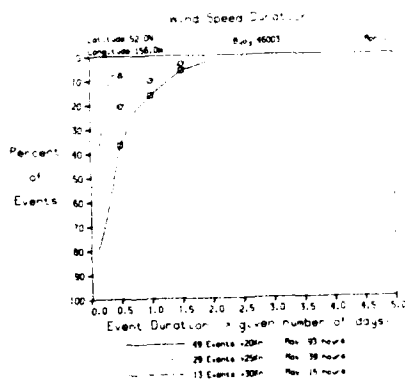
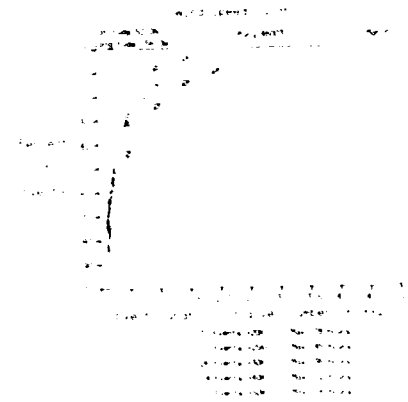
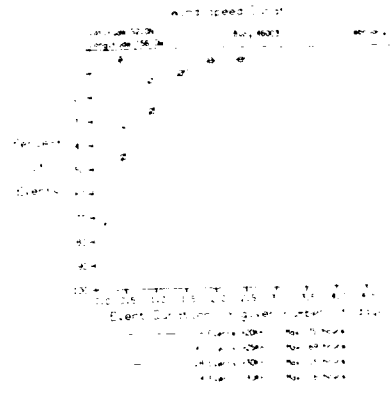
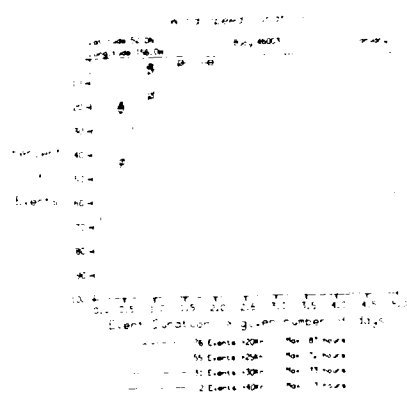


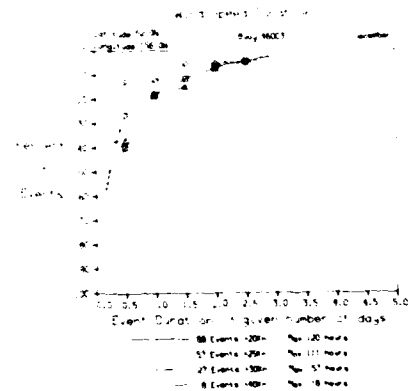
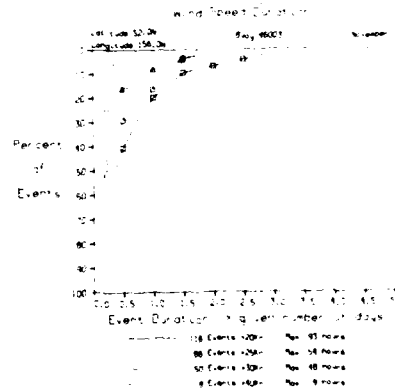
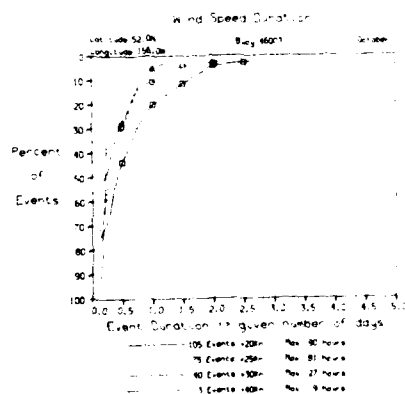
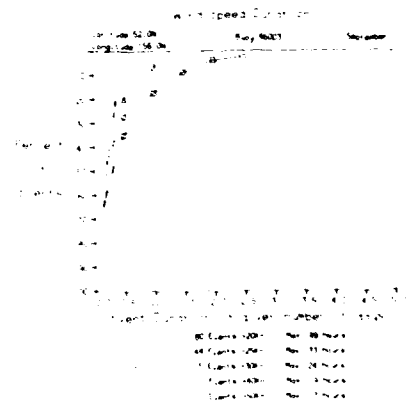
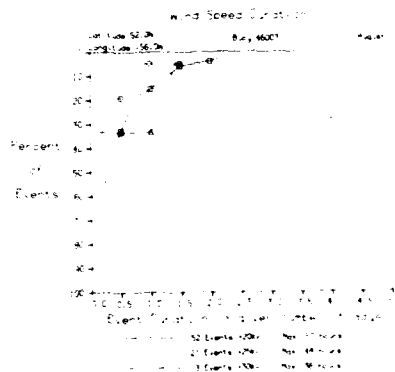
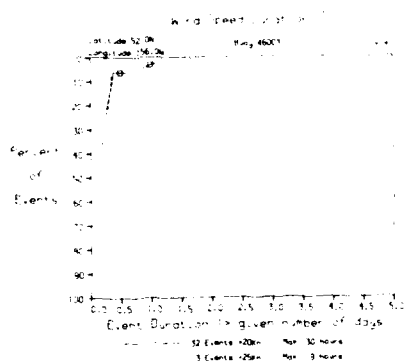


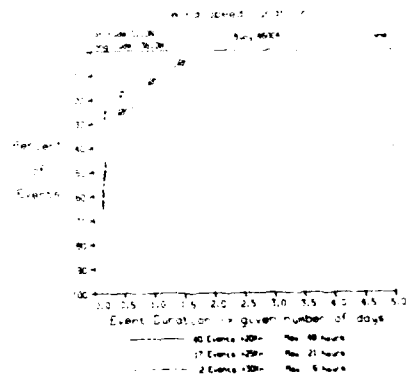
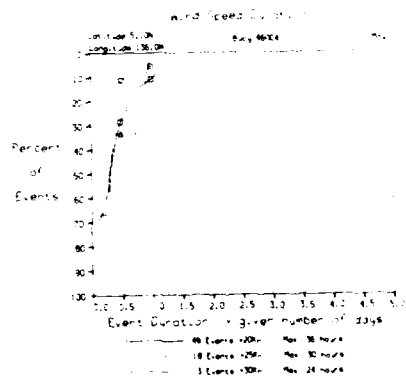
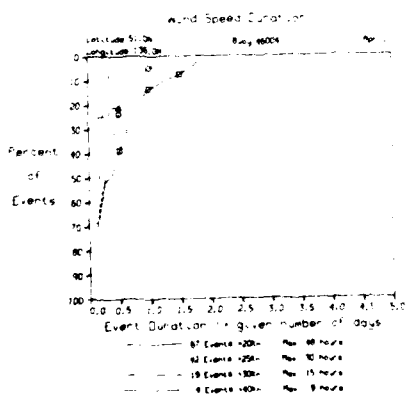
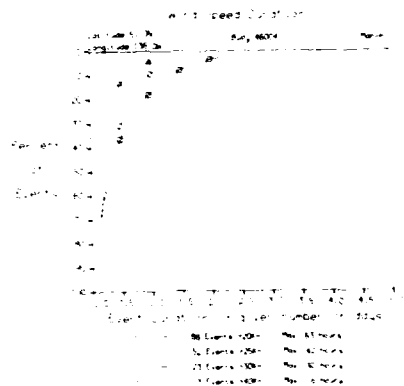
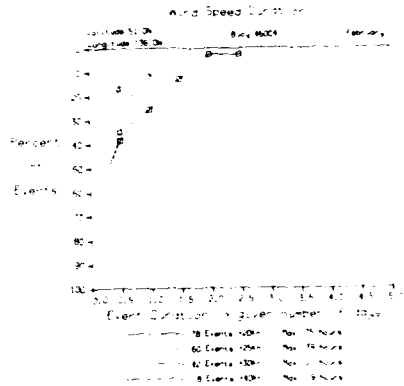
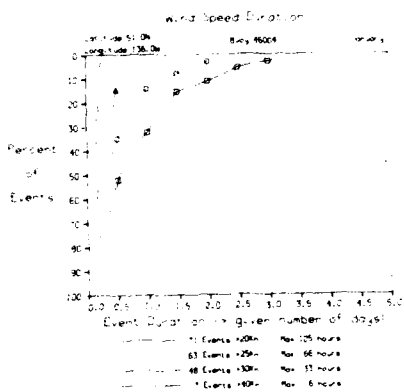


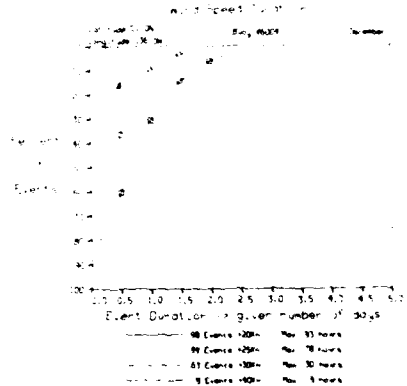
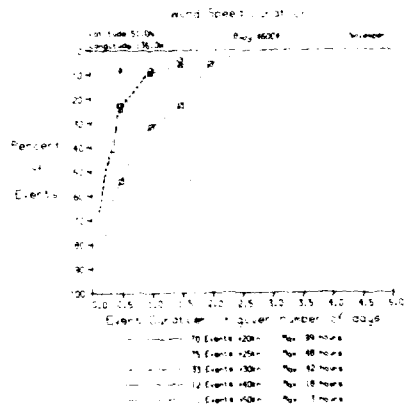
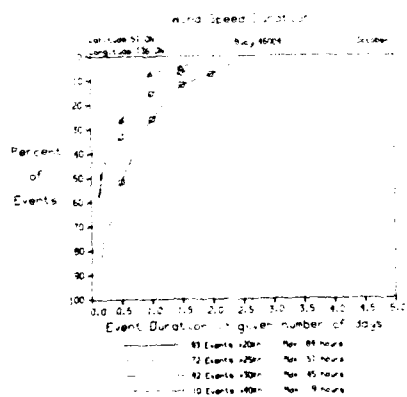
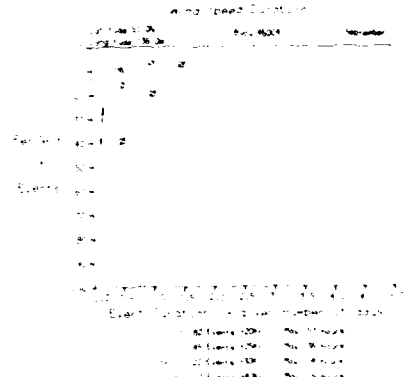
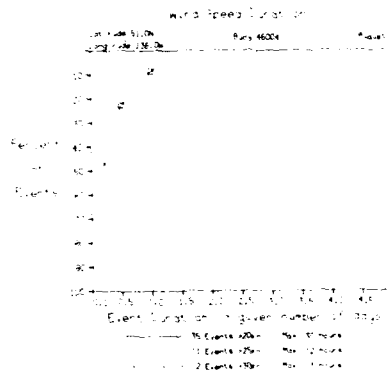


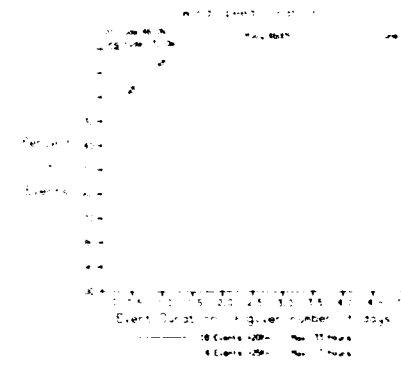
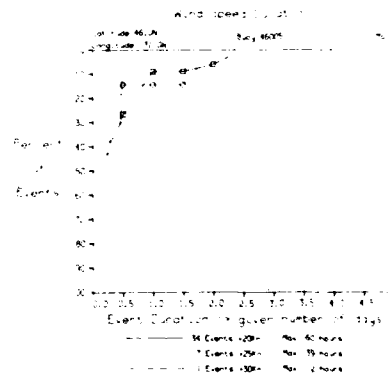
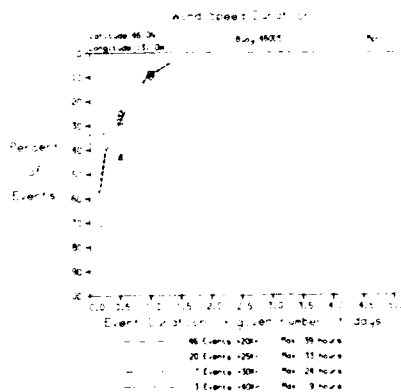
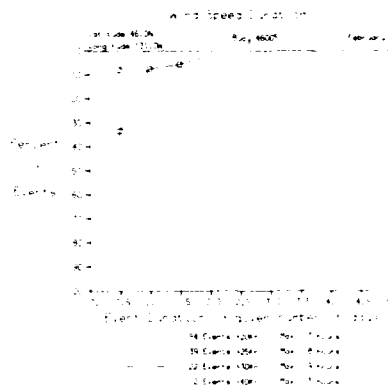
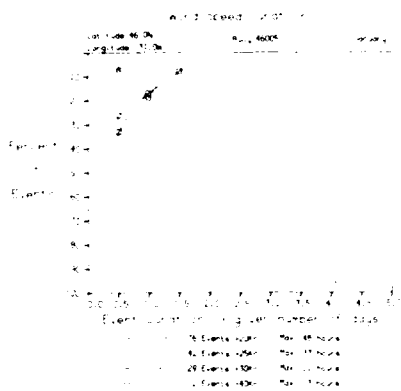


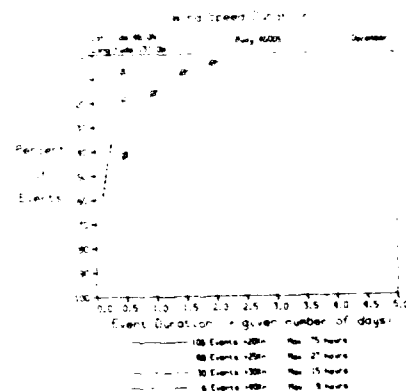
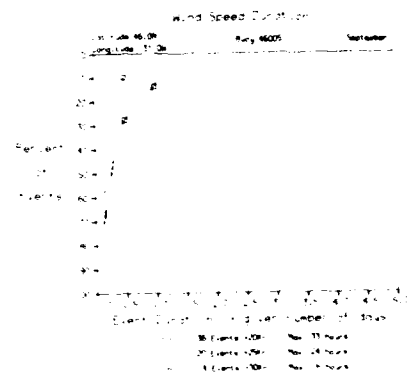


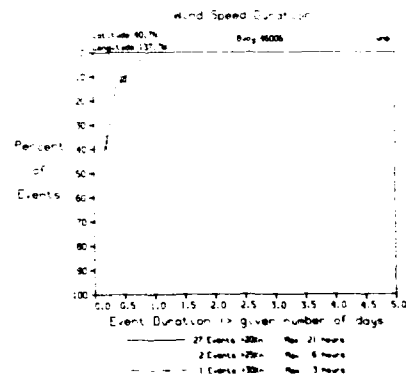
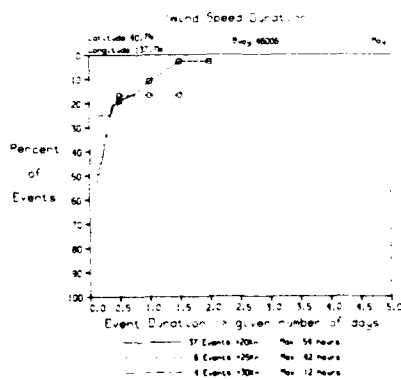
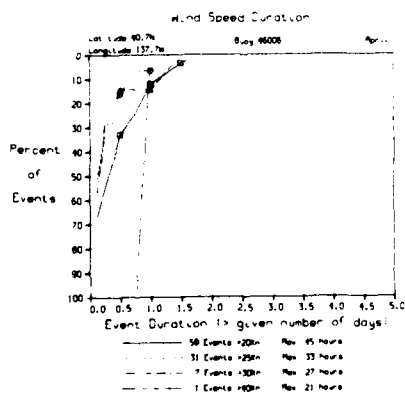
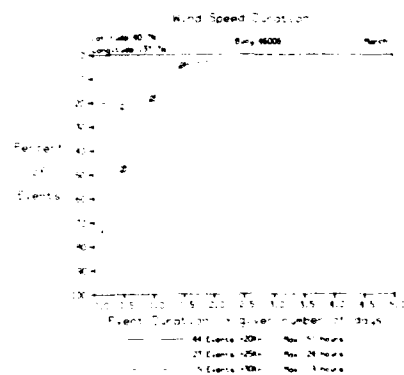
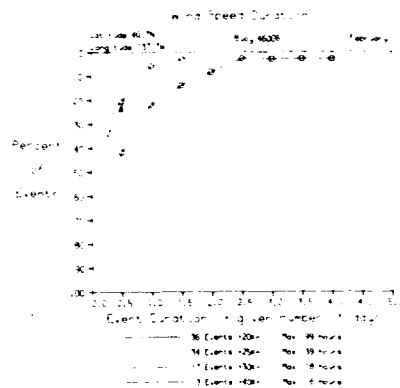
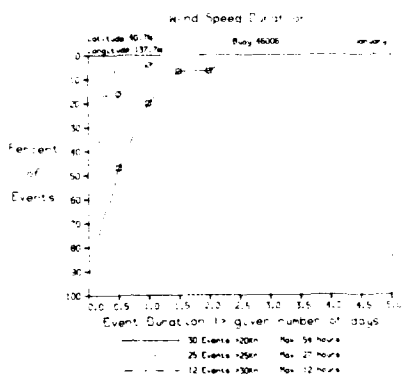


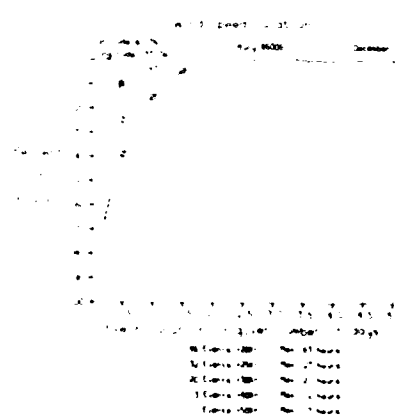
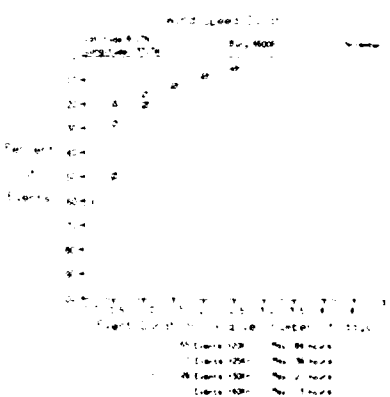
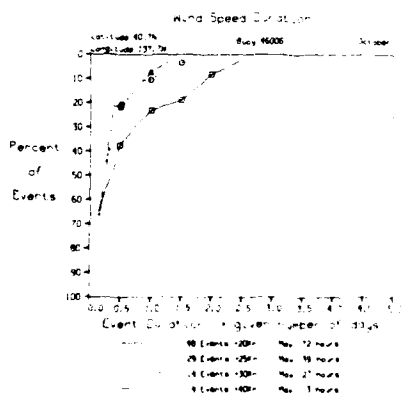
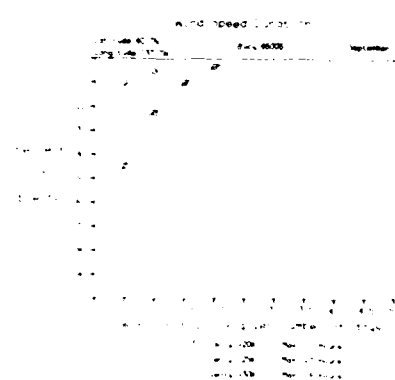
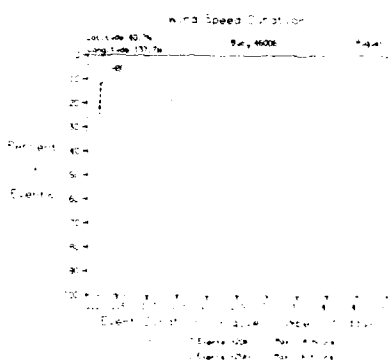
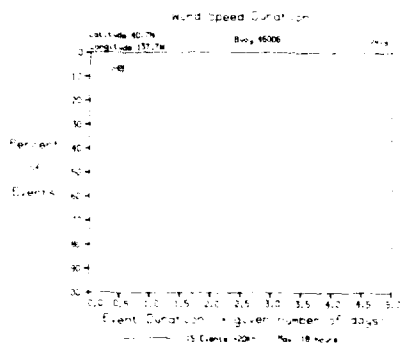












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6077 of 12,10 (2451907) 99,24

[illegible]

SEA LEVEL PRESSURE

244

$$H^1(X, \mathbb{Z}) \cong H^1(X, \mathbb{R}) \oplus H^1(X, \mathbb{C}) \oplus H^1(X, \mathbb{H}) \oplus H^1(X, \mathbb{O}) \oplus H^1(X, \mathbb{C}) \oplus H^1(X, \mathbb{H}) \oplus H^1(X, \mathbb{O})$$
242

4011.01 20.00 40611.01 01.50

S. ORACE BING SPEED

245

14711-25 20.00 130017-50 16.50

[illegible]

[illegible]

[illegible]

00001													LATITUDE 40.0N LONGITUDE 68.0W															
MONTHLY AND ANNUAL FREQUENCY AND CUMULATIVE RELATIVE FREQUENCY																												
SURFACE WIND SPEED													(KNOTS)															
JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC		ANN				
F	CDF	F	CDF	F	CDF	F	CDF	F	CDF	F	CDF	F	CDF	F	CDF	F	CDF	F	CDF	F	CDF	F	CDF	F	CDF	F	CDF	
40	1.0000																									1.0000		
39																										1.0000		
38	1.9981																									1.9981		
37	1.9962					1.1200																					1.9962	
36	1.9905		2.1000			1.0000																					1.9905	
35	1.0030		1.0000			0.9987																					1.0030	
34	1.0735																										1.0735	
33	1.0621		2.0978			0.9985																					1.0621	
32	1.0490		2.0964			0.9900																					1.0490	
31	1.0357									2.1000																	1.0357	
30	1.0169		1.9944			0.9864				2.0991																	1.0169	
29	1.0079		1.9928			0.9775		3.1000		2.0985																	1.0079	
28	1.0007					2.0731		3.0994		2.0984																	1.0007	
27	1.0752		0.9920			1.0656		0.9970		0.9936																	1.0752	
26	13.0620		10.9967			2.9537		1.9973																			13.0620	
25	11.0376		15.9707			25.1627		20.9980		17.0000																	11.0376	
24	11.7977		30.0662			30.0206		0.9922		17.0001																	11.7977	
23	15.0519					35.0068				16.0000																	15.0519	
22	26.1926		27.0209			56.0764		06.0927		13.9733																	26.1926	
21	15.0519					35.0068				22.0001																	15.0519	
20	21.0673		30.0008			50.0325		06.0128		17.0554																	21.0673	
19	21.0638		35.0626			61.7813		15.0020		19.0536																	19.0638	
18	29.0596		66.0115			108.0000				18.0000																	29.0596	
17	35.0555		70.7983			72.0000		131.0001		05.0117																	35.0555	
16	29.0596					80.0000		140.7984		51.0167																	29.0596	
15	25.0190		71.0000			92.0119		162.7111		06.0071																	25.0190	
14	16.3502		66.2091			95.0500		100.0000		97.0760																	16.3502	
13	15.0280		66.0575			78.0000		185.0000		55.0000																	15.0280	
12	15.0205		60.0000			80.0000		171.5703		157.0010																	15.0205	
11	15.0152					66.0000		166.0000		157.0000																	15.0152	
10	25.0190		71.0000			81.0000		155.0000		197.0000																	10.0190	
9	20.0168		61.0225			77.0000		103.0000		210.0000																	9.0168	
8	15.0151		70.0000			100.0575		161.0000		240.0000																	8.0151	
7	10.0026		50.0213			91.0195		128.0788		244.0516																	7.0026	
6	15.0151		60.0000			88.0381		129.0000		241.0000																	6.0151	
5	1.0567		50.0180			88.0000		123.0000		215.0000																	5.0567	
4	1.0005		50.0000			29.0611		88.0000		216.0000																	4.0005	
3	1.0000		50.0000			75.0000		126.0000		216.0000																	3.0000	
2	0.0132		32.0000			19.0000		50.0000		07.0000																	2.0132	
1	0.0007		13.0000			07.0000		07.0000		07.0000																	1.0007	
0	0.0000					00.0000		11.0000		00.0000																	0.0000	
MEAN	17.4		12.7		14.2		12.2		8.9		7.5		6.8		7.1		10.1		12.4		14.9		15.4		13.0			
S.D.	8.1		6.7		7.0		5.4		5.3		4.1		3.7		4.7		5.5		5.4		7.7		5.8		5.8			
TOT	429.0		134.0		1600.0		2812.0		2485.0		2175.0		1837.0		2460.0		2698.0		2520.0		2071.0		1796.0		24572.0			
MAX	40.0		36.0		37.0		34.0		31.0		22.0		21.0		27.0		28.0		31.0		36.0		40.0		40.0			
MIN	0		0		0		0		0		0		0		0		0		0		0		0		0			

4471702E 30.00 43061700F 70.00

F	FIB		WAC		SPO		WAT		LARGE WIND SPEED		FALL		RUG		SER		DET		NOV		DEC		ANN	
	F	CH	F	CH	F	CH	F	CH	F	CH	F	CH	F	CH	F	CH	F	CH	F	CH	F	CH	F	CH
1	1.0000																						1.0000	
2	1.0000																						1.0000	
3	1.0000																						1.0000	
4	1.0000																						1.0000	
5	1.0000																						1.0000	
6	1.0000																						1.0000	
7	1.0000																						1.0000	
8	1.0000																						1.0000	
9	1.0000																						1.0000	
10	1.0000																						1.0000	
11	1.0000																						1.0000	
12	1.0000																						1.0000	
13	1.0000																						1.0000	
14	1.0000																						1.0000	
15	1.0000																						1.0000	
16	1.0000																						1.0000	
17	1.0000																						1.0000	
18	1.0000																						1.0000	
19	1.0000																						1.0000	
20	1.0000																						1.0000	
21	1.0000																						1.0000	
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23	1.0000																						1.0000	
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28	1.0000																						1.0000	
29	1.0000																						1.0000	
30	1.0000																						1.0000	
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36	1.0000																						1.0000	
37	1.0000																						1.0000	
38	1.0000																						1.0000	
39	1.0000																						1.0000	
40	1.0000																						1.0000	
41	1.0000																						1.0000	
42	1.0000																						1.0000	
43	1.0000																						1.0000	
44	1.0000																						1.0000	
45	1.0000																						1.0000	
46	1.0000																						1.0000	
47	1.0000																						1.0000	
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66	1.0000																						1.0000	
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91	1.0000																						1.0000	
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94	1.0000																						1.0000	
95	1.0000																						1.0000	
96	1.0000																						1.0000	
97	1.0000																						1.0000	
98	1.0000																						1.0000	
99	1.0000																						1.0000	
100	1.0000																						1.0000	

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WIND

MONTHLY AND ANNUAL FREQUENCY AND CUMULATIVE RELATIVE FREQUENCY

LATITUDE 42.5N LONGITUDE 157.2E

LAT	LONG	SURFACE WIND SPEED										NOV	DEC	ANN
		1	2	3	4	5	6	7	8	9	10			
42	157	1.0000												1.0000
41	157	1.0000												1.0000
40	157	1.0000												1.0000
39	157	1.0000												1.0000
38	157	1.0000												1.0000
37	157	1.0000												1.0000
36	157	1.0000												1.0000
35	157	1.0000												1.0000
34	157	1.0000												1.0000
33	157	1.0000												1.0000
32	157	1.0000												1.0000
31	157	1.0000												1.0000
30	157	1.0000												1.0000
29	157	1.0000												1.0000
28	157	1.0000												1.0000
27	157	1.0000												1.0000
26	157	1.0000												1.0000
25	157	1.0000												1.0000
24	157	1.0000												1.0000
23	157	1.0000												1.0000
22	157	1.0000												1.0000
21	157	1.0000												1.0000
20	157	1.0000												1.0000
19	157	1.0000												1.0000
18	157	1.0000												1.0000
17	157	1.0000												1.0000
16	157	1.0000												1.0000
15	157	1.0000												1.0000
14	157	1.0000												1.0000
13	157	1.0000												1.0000
12	157	1.0000												1.0000
11	157	1.0000												1.0000
10	157	1.0000												1.0000
9	157	1.0000												1.0000
8	157	1.0000												1.0000
7	157	1.0000												1.0000
6	157	1.0000												1.0000
5	157	1.0000												1.0000
4	157	1.0000												1.0000
3	157	1.0000												1.0000
2	157	1.0000												1.0000
1	157	1.0000												1.0000
0	157	1.0000												1.0000
31	156	1.0000												1.0000
30	156	1.0000												1.0000
29	156	1.0000												1.0000
28	156	1.0000												1.0000
27	156	1.0000												1.0000
26	156	1.0000												1.0000
25	156	1.0000												1.0000
24	156	1.0000												1.0000
23	156	1.0000												1.0000
22	156	1.0000												1.0000
21	156	1.0000												1.0000
20	156	1.0000												1.0000
19	156	1.0000												1.0000
18	156	1.0000												1.0000
17	156	1.0000												1.0000
16	156	1.0000												1.0000
15	156	1.0000												1.0000
14	156	1.0000												1.0000
13	156	1.0000												1.0000
12	156	1.0000												1.0000
11	156	1.0000												1.0000
10	156	1.0000												1.0000
9	156	1.0000												1.0000
8	156	1.0000												1.0000
7	156	1.0000												1.0000
6	156	1.0000												1.0000
5	156	1.0000												1.0000
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3	156	1.0000												1.0000
2	156	1.0000												1.0000
1	156	1.0000												1.0000
31	155	1.0000												1.0000
30	155	1.0000												1.0000
29	155	1.0000												1.0000
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27	155	1.0000												1.0000
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25	155	1.0000												1.0000
24	155	1.0000												1.0000
23	155	1.0000												1.0000
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19	155	1.0000												1.0000
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18	154	1.0000												1.0000
17	154	1.0000												1.0000
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9	154	1.0000												1.0000
8	154	1.0000												1.0000
7	154	1.0000												1.0000
6	154	1.0000												1.0000
5	154	1.0000												1.0000
4	154	1.0000												1.0000
3	154	1.0000												1.0000
2	154	1.0000												1.0000
1	154	1.0000												1.0000
31	153	1.0000												1.0000
30	153	1.0000												

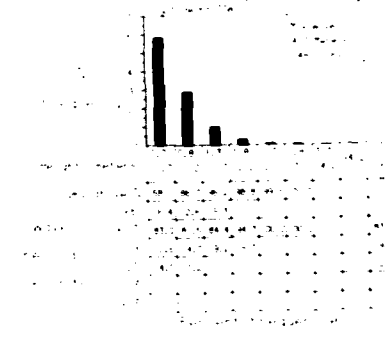
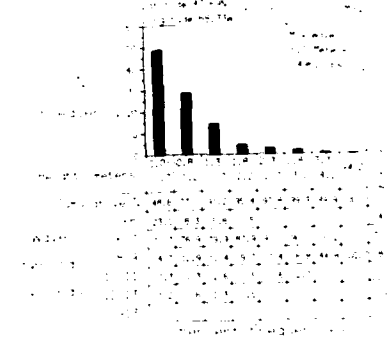
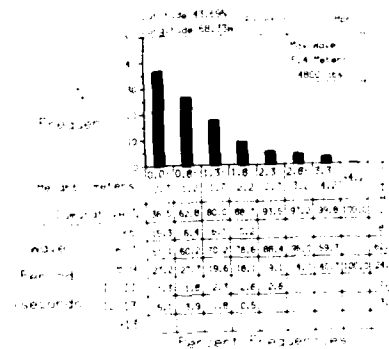
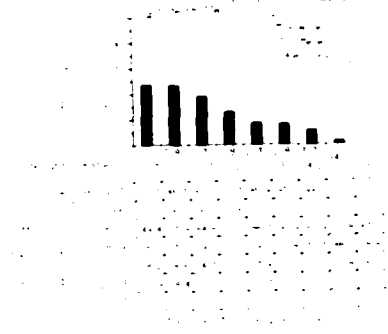
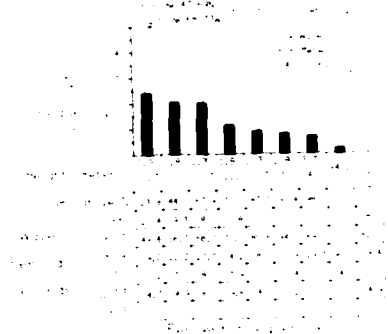
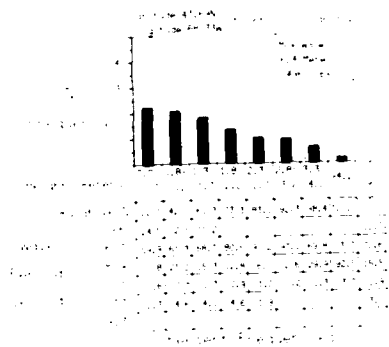
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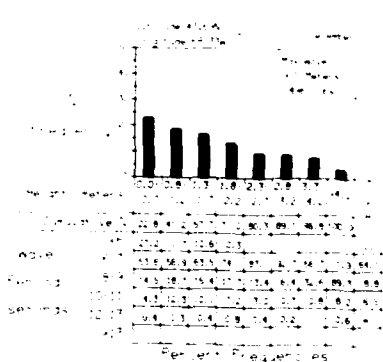
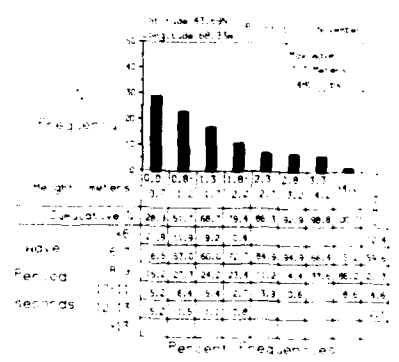
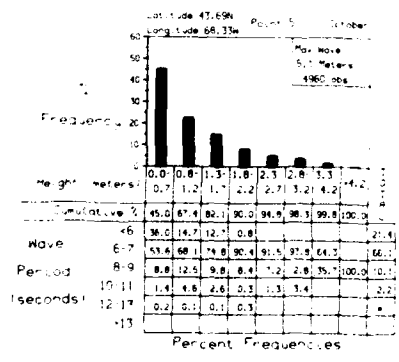
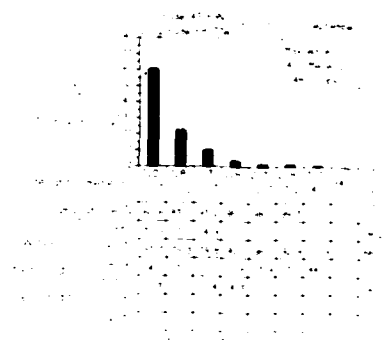
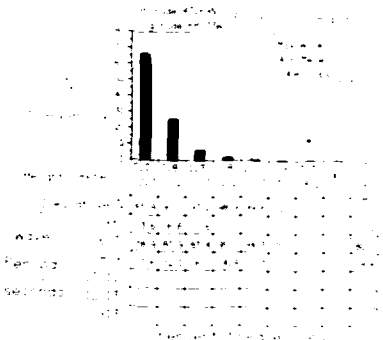
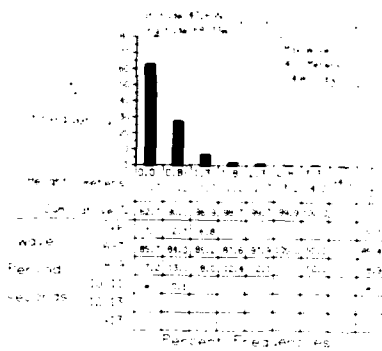
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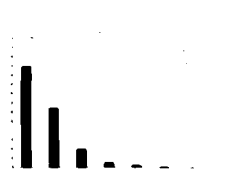
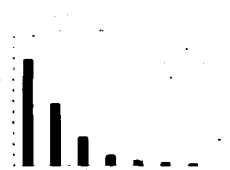
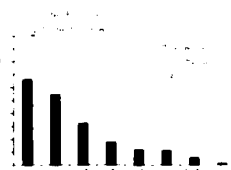
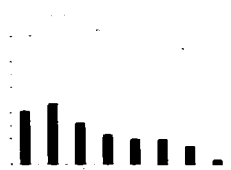
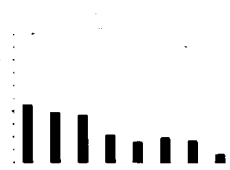
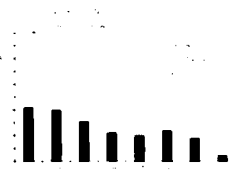
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LATITUDE 46.00 LONGITUDE 131.00

259







AD-A130 647

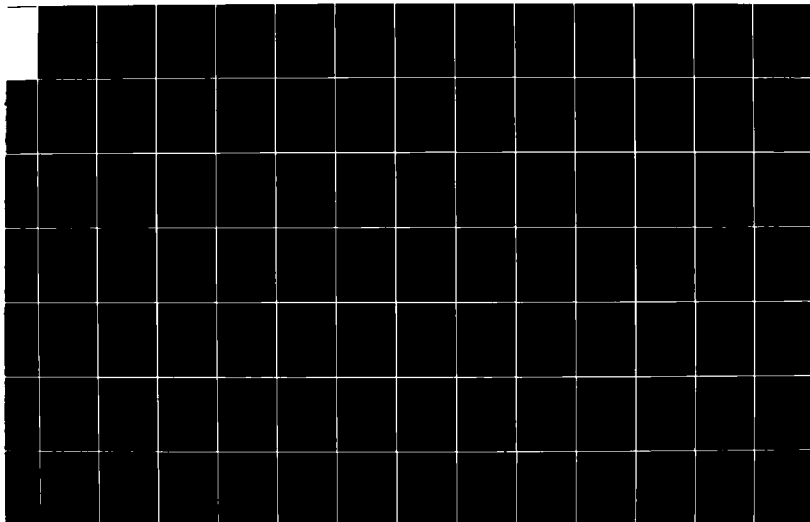
WIND AND WAVE SUMMARIES FOR SELECTED US COAST GUARD
OPERATING AREAS(U) NATIONAL CLIMATIC DATA CENTER
ASHEVILLE NC D PASKAUSKY ET AL. APR 83 USCG-D-11-83
MIPR-Z70099-2-0612R

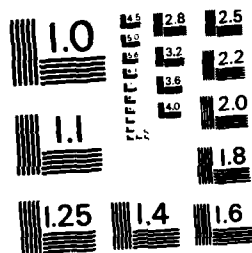
4/5

UNCLASSIFIED

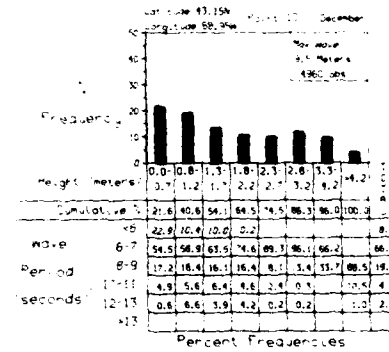
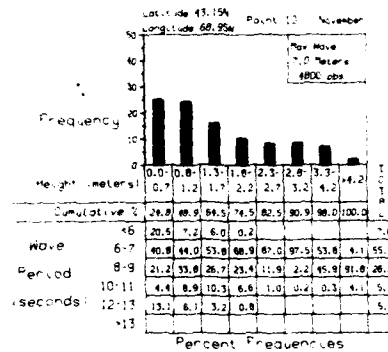
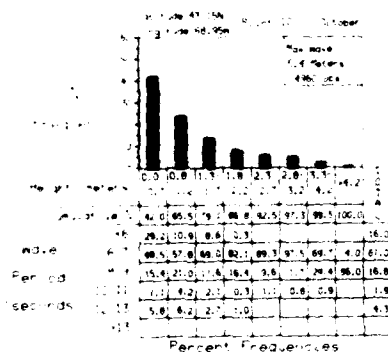
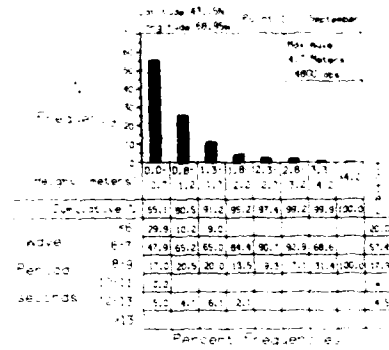
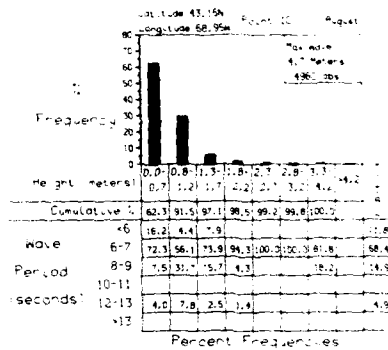
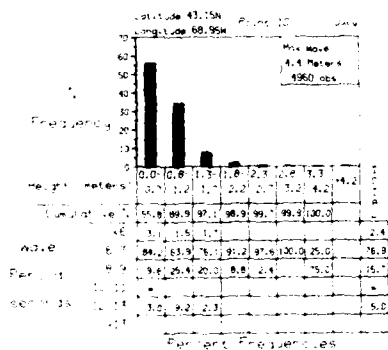
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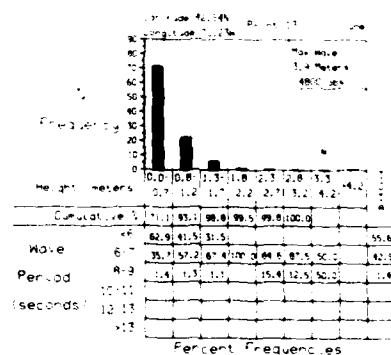
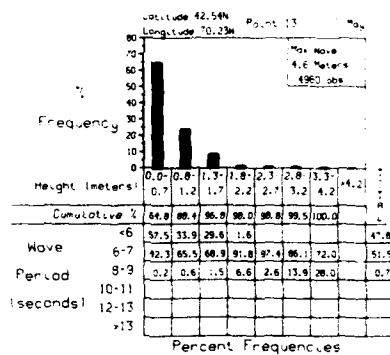
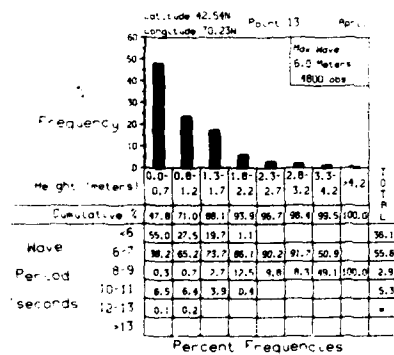
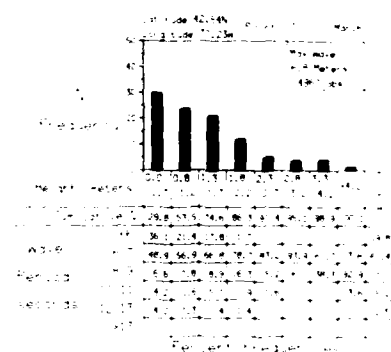
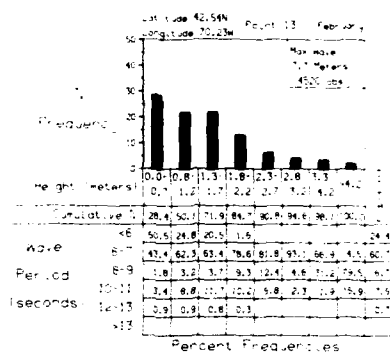
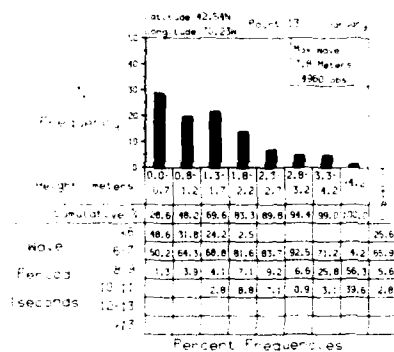
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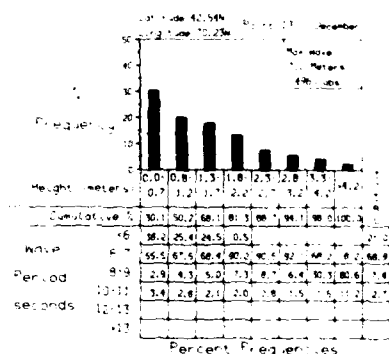
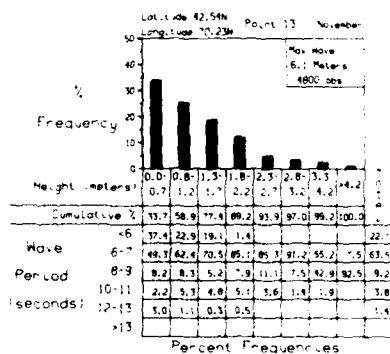
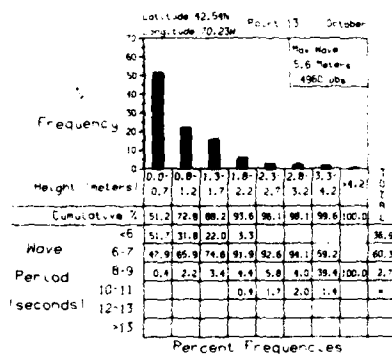
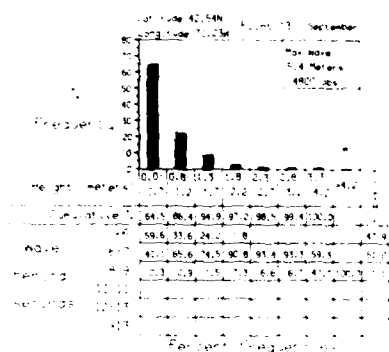
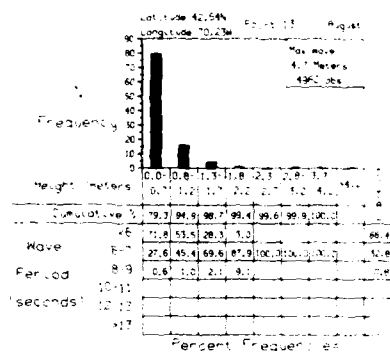
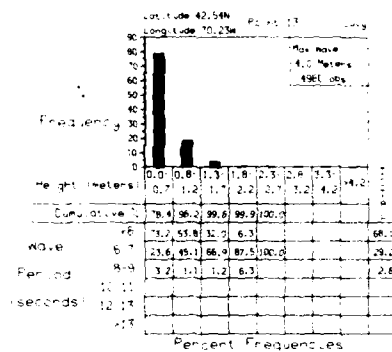


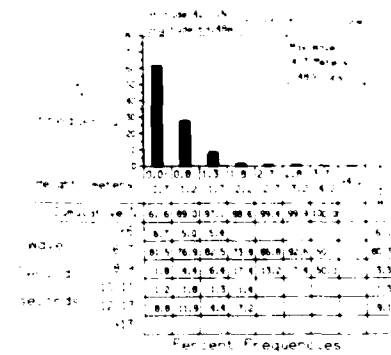
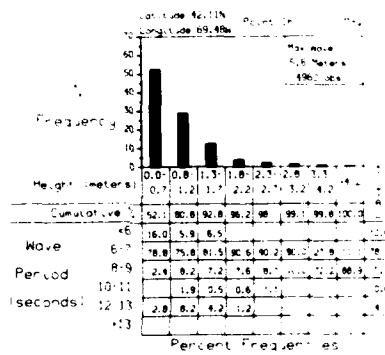
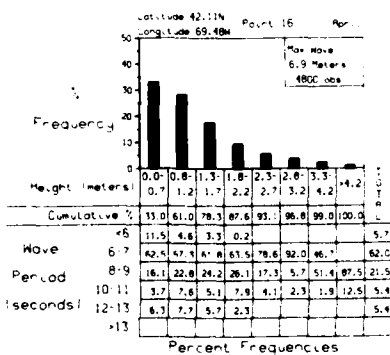
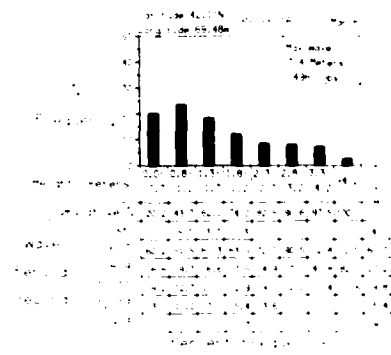
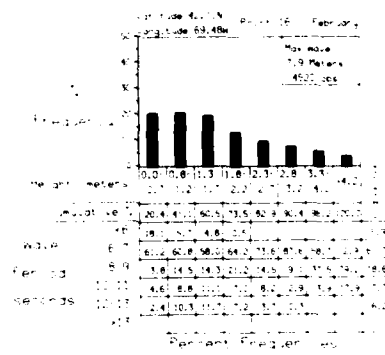
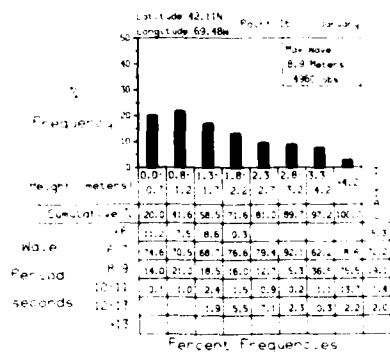


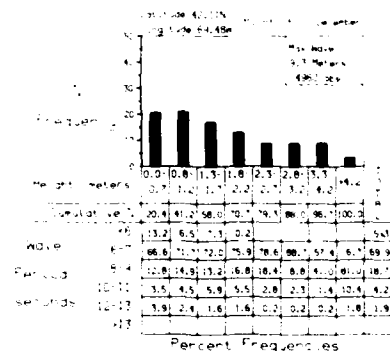
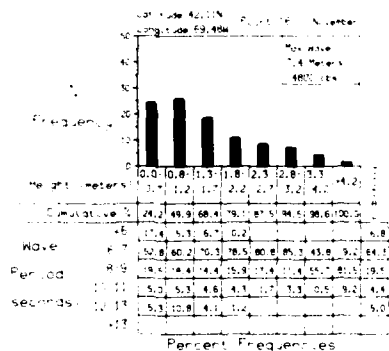
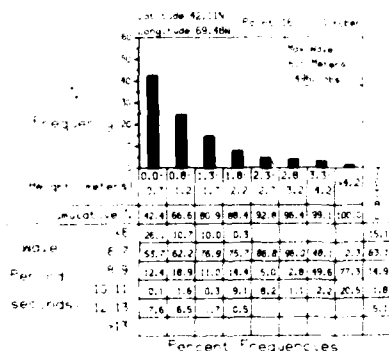
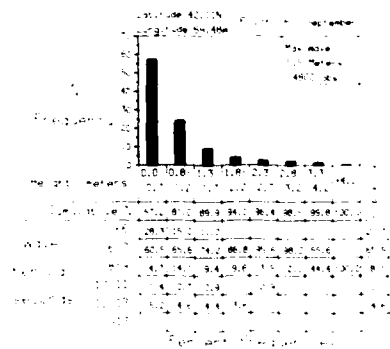
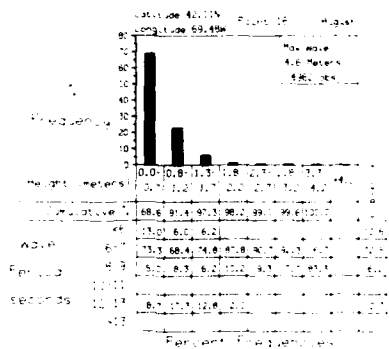
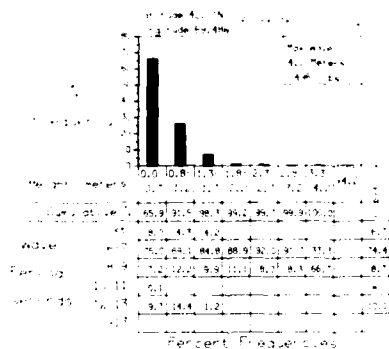
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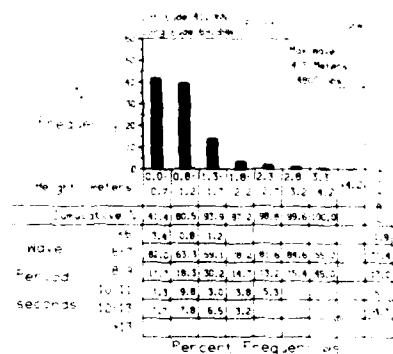
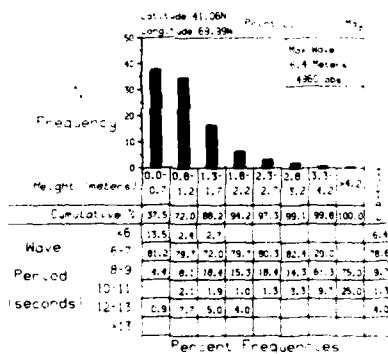
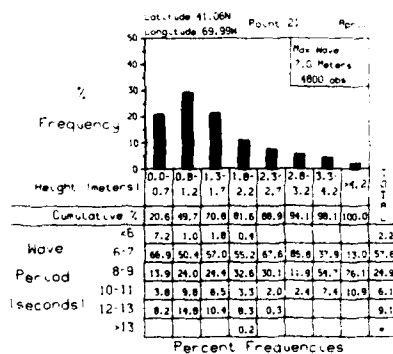
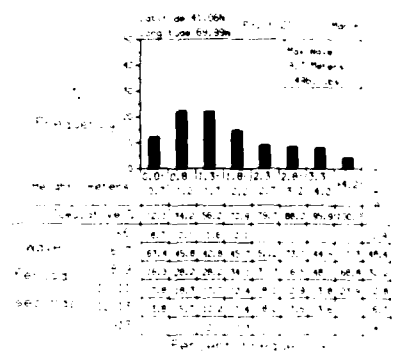
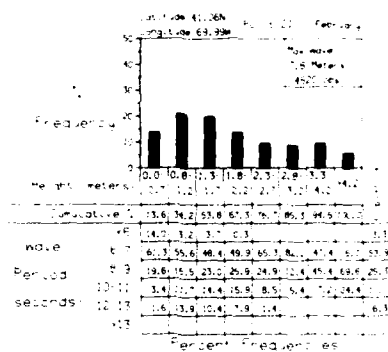
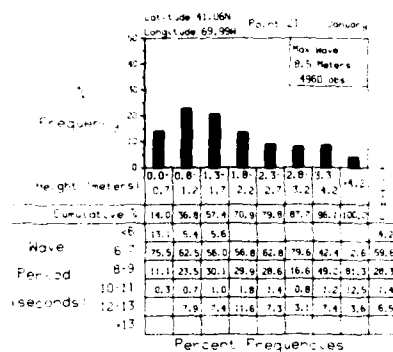


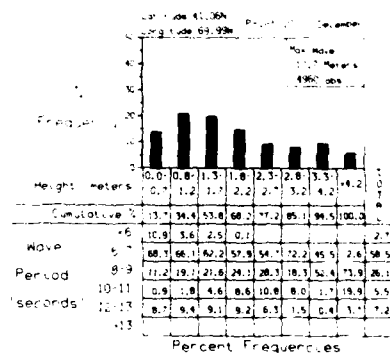
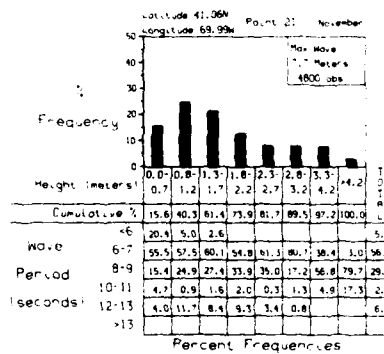
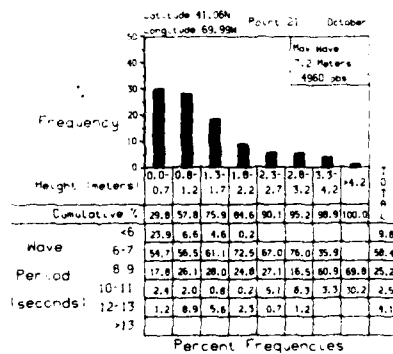
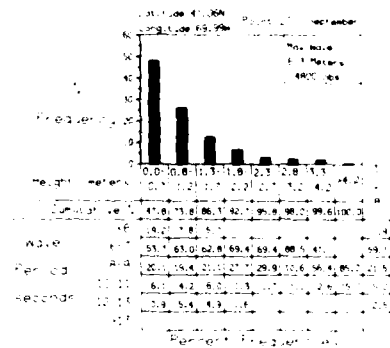
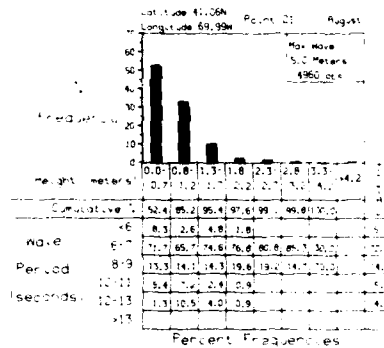
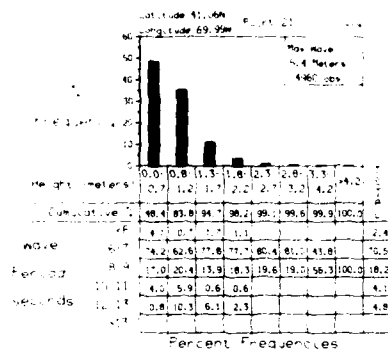


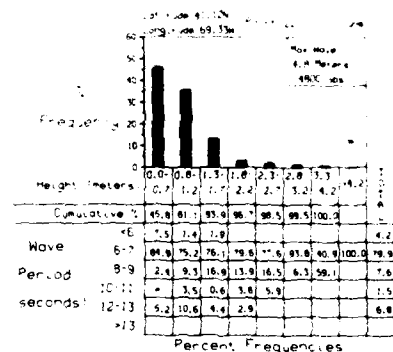
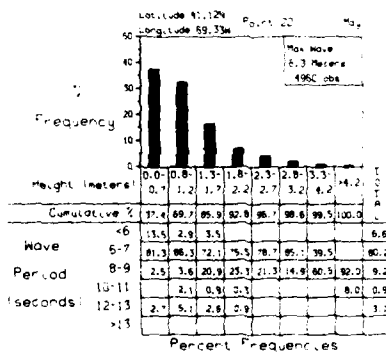
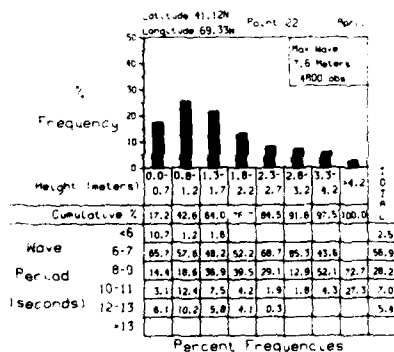
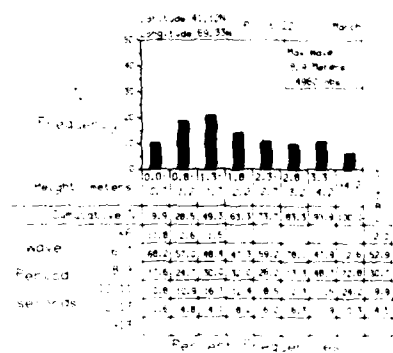
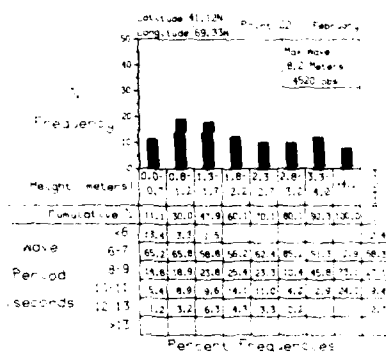
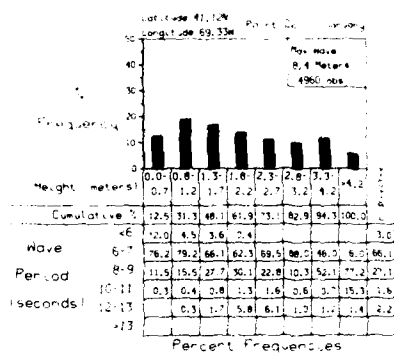


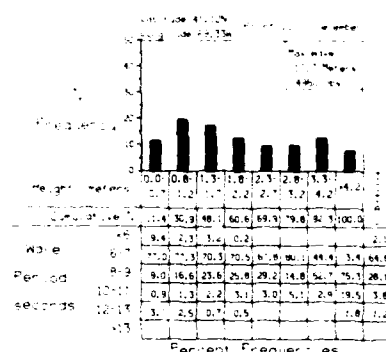
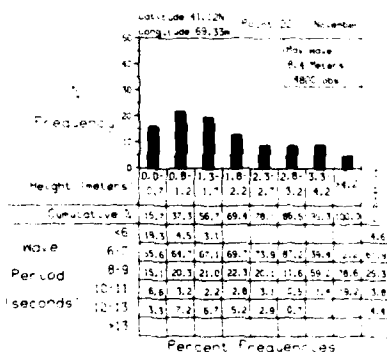
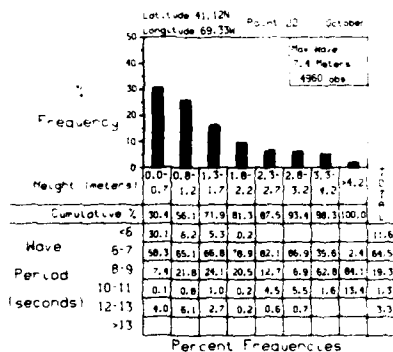
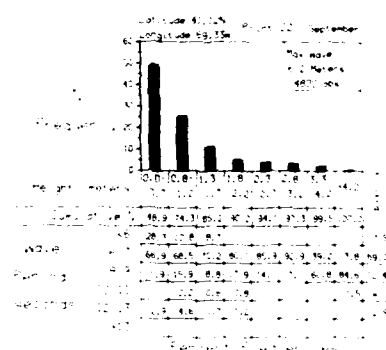
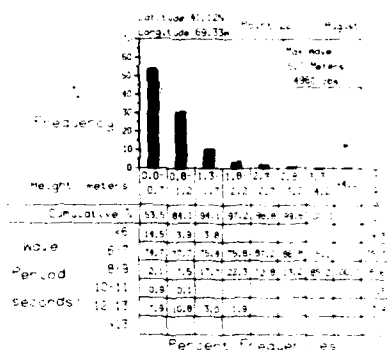
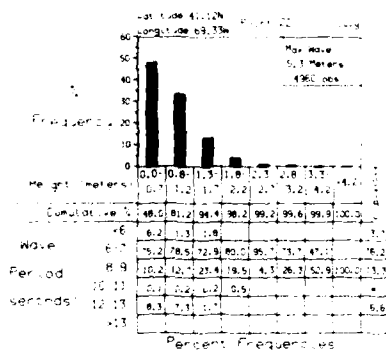


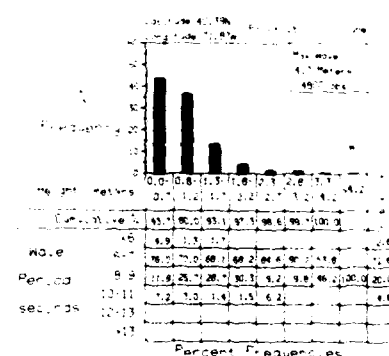
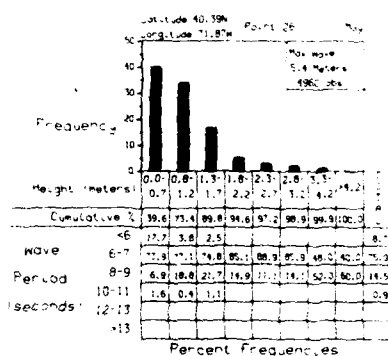
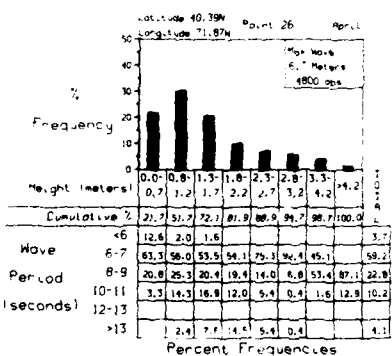
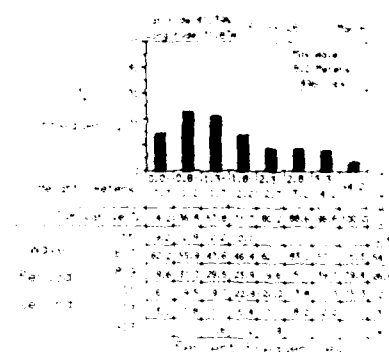
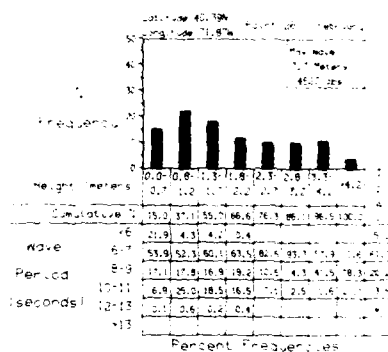
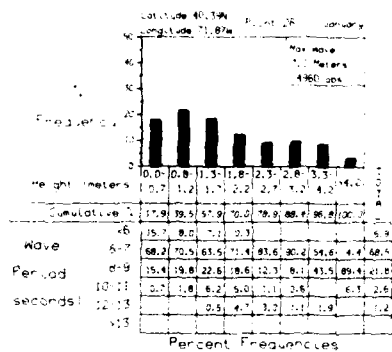


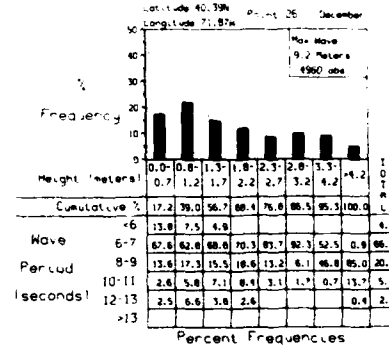
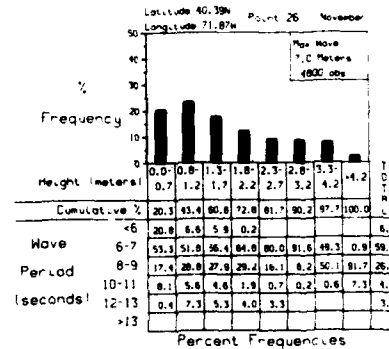
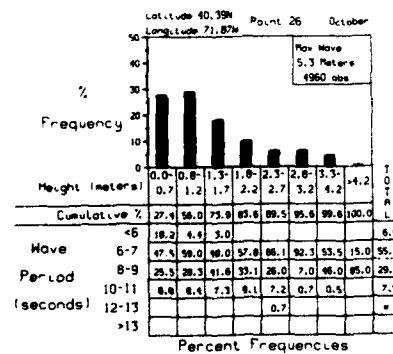
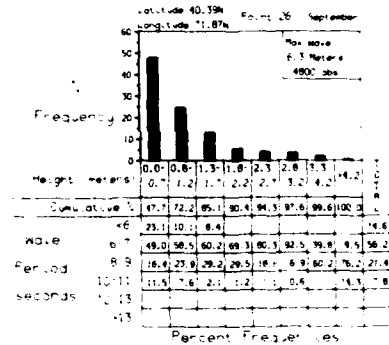
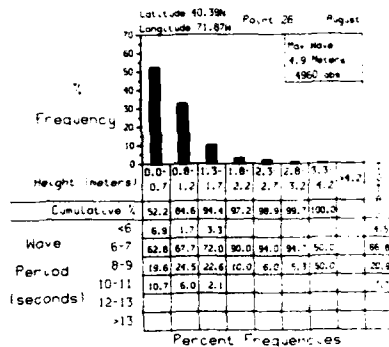
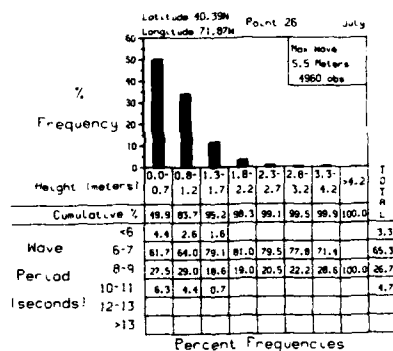


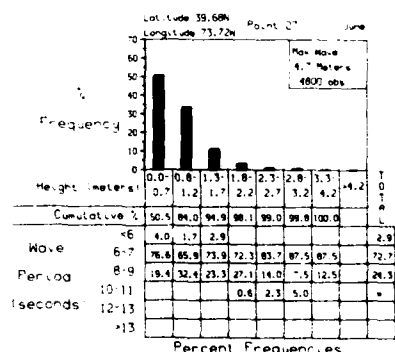
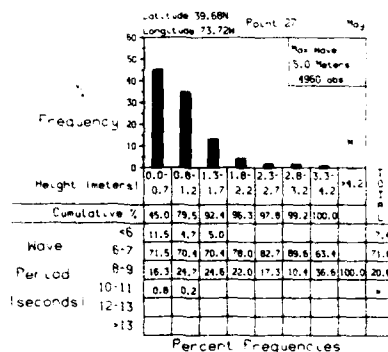
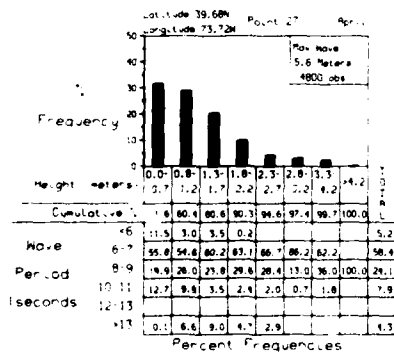
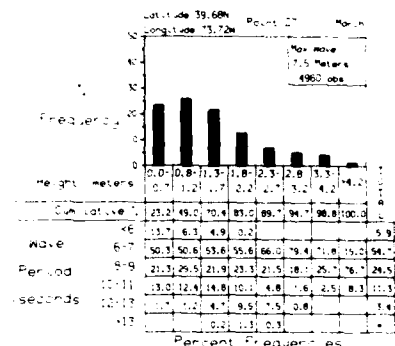
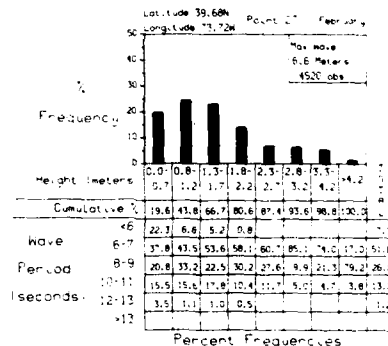
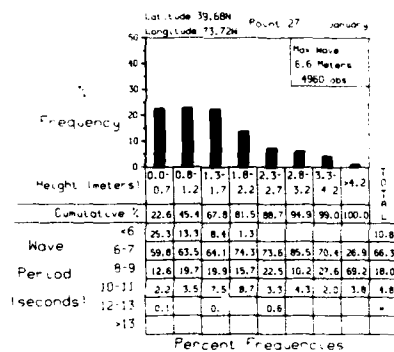


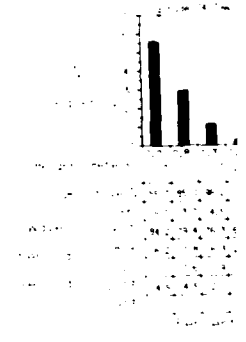
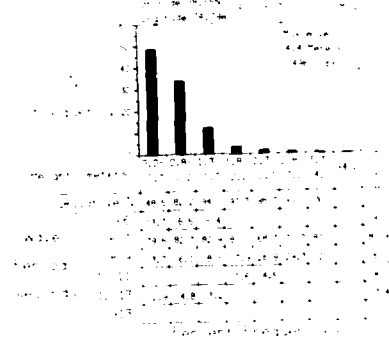
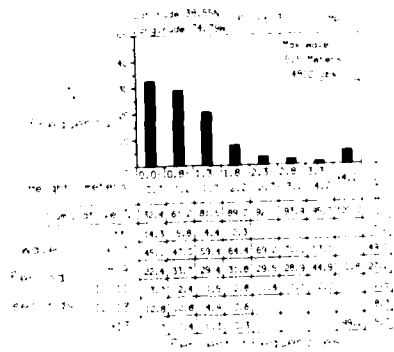
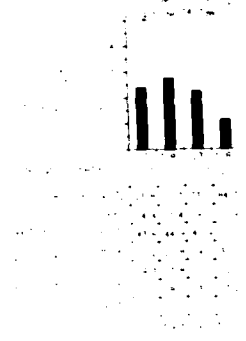
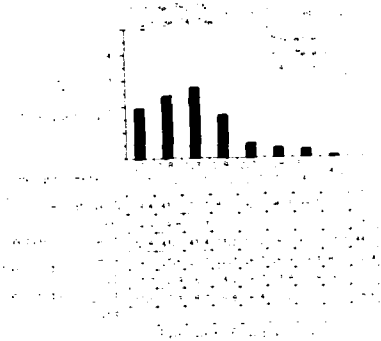
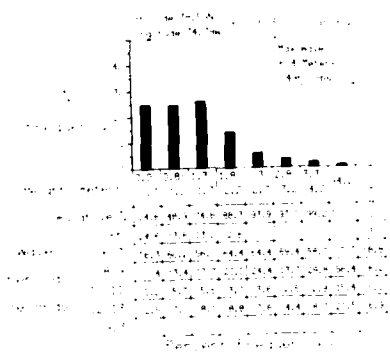


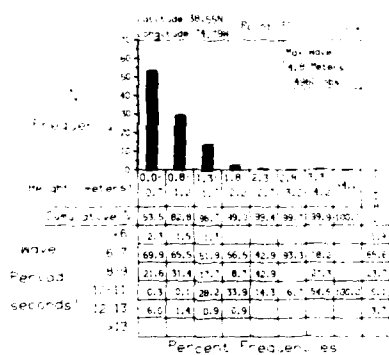


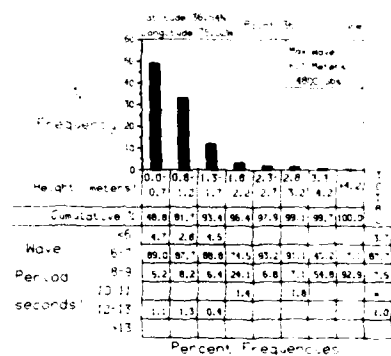
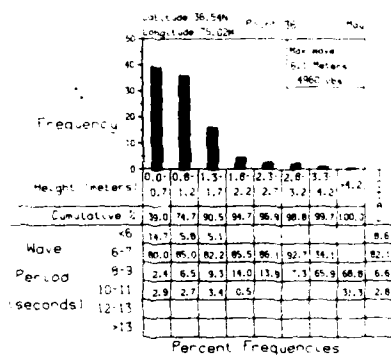
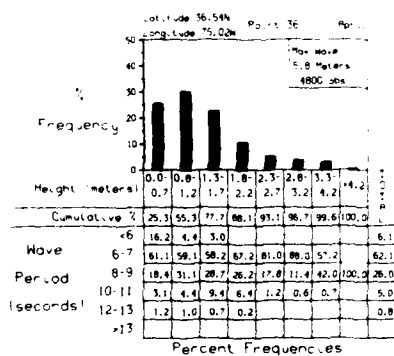
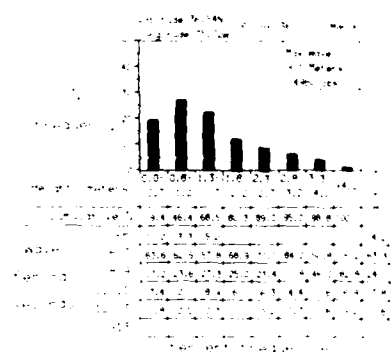
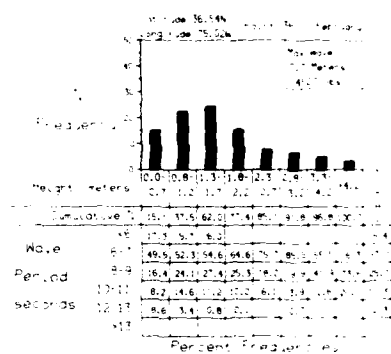
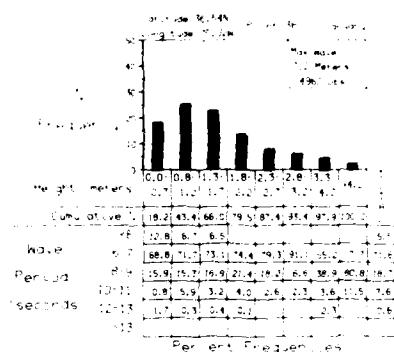


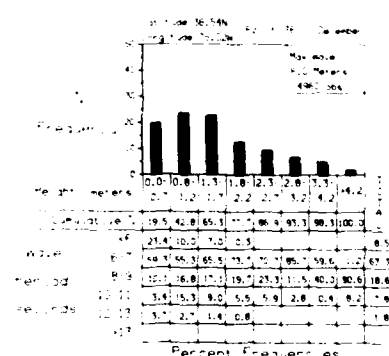
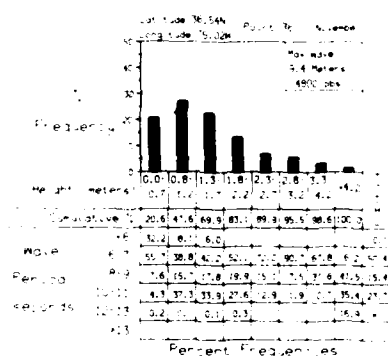
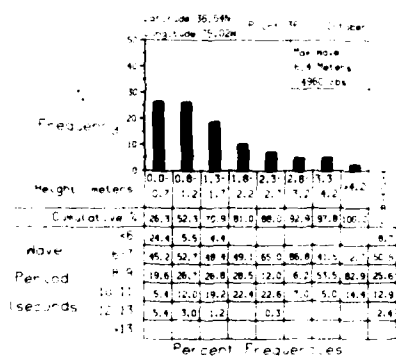
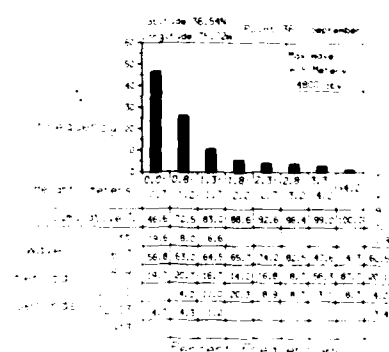
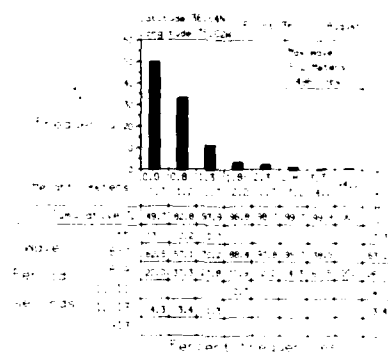
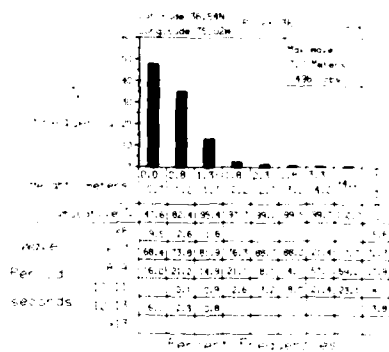


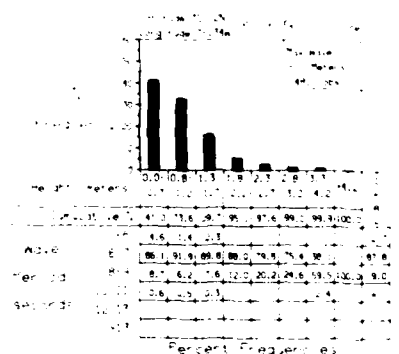
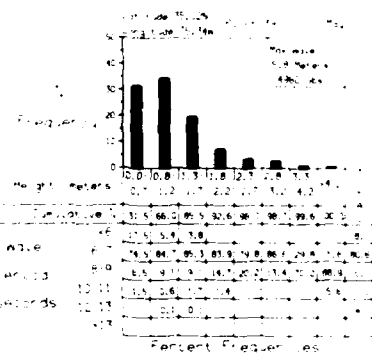
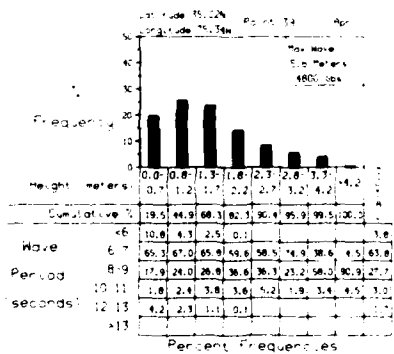
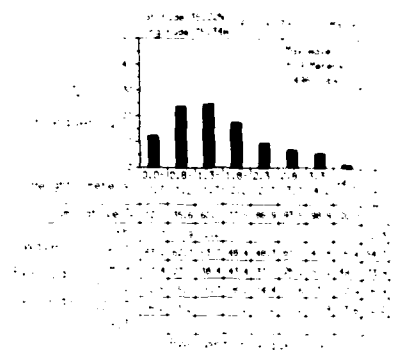
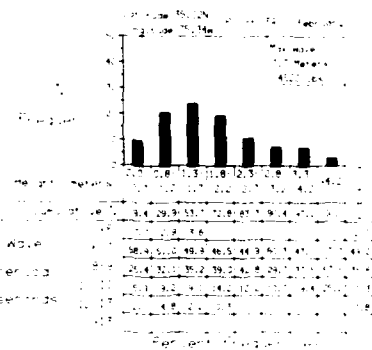
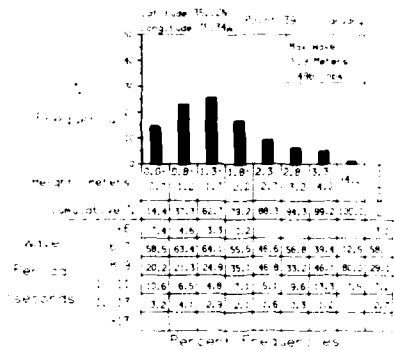


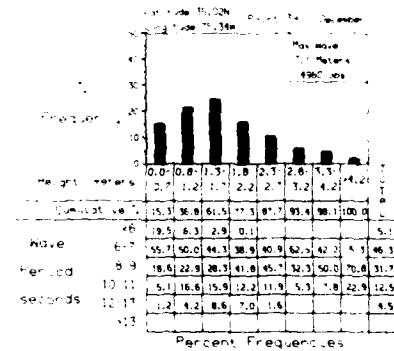
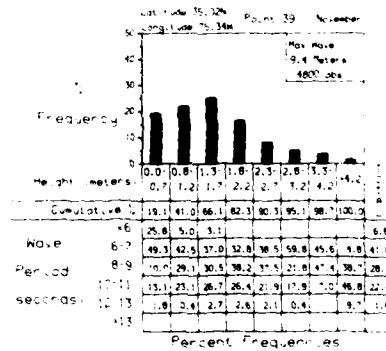
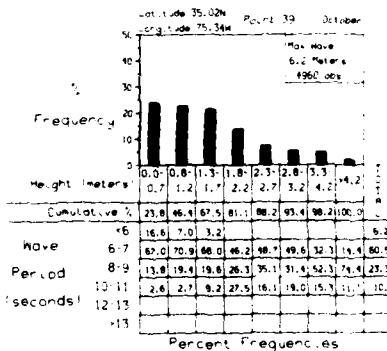
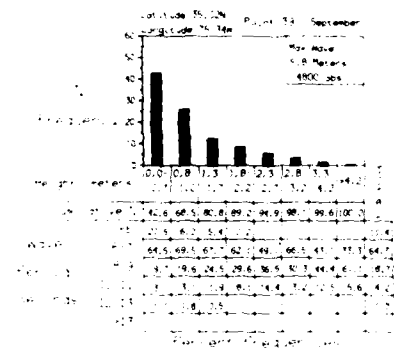
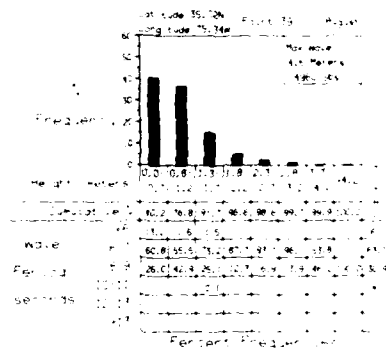
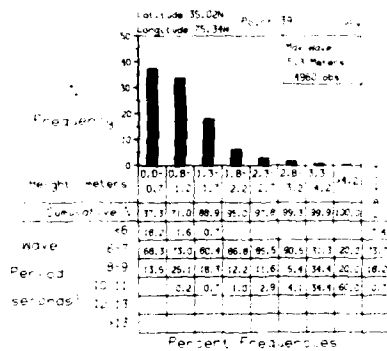


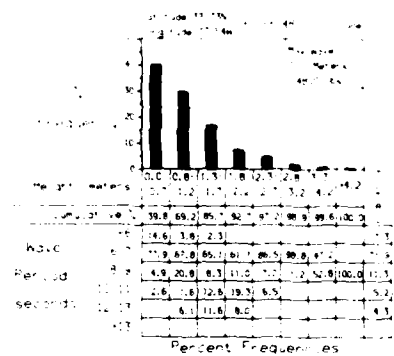
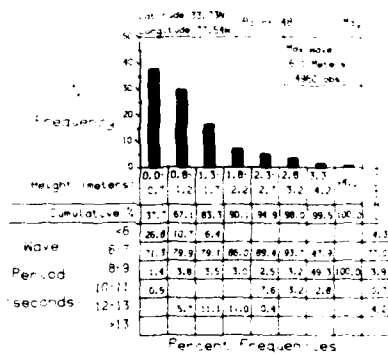
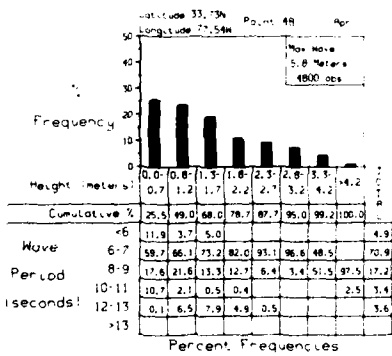
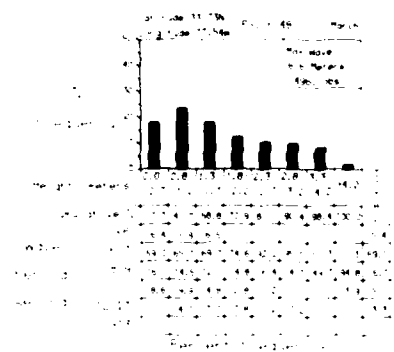
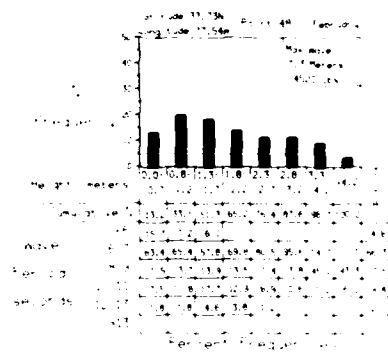
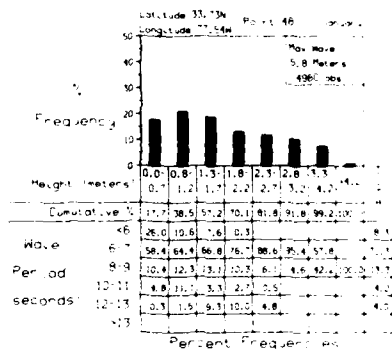


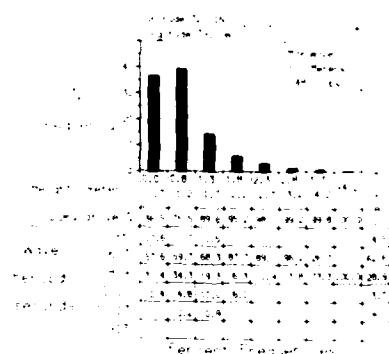
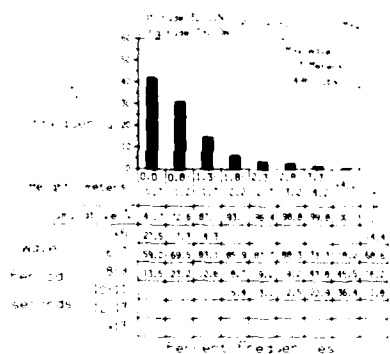
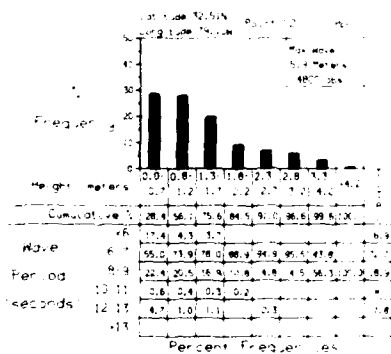
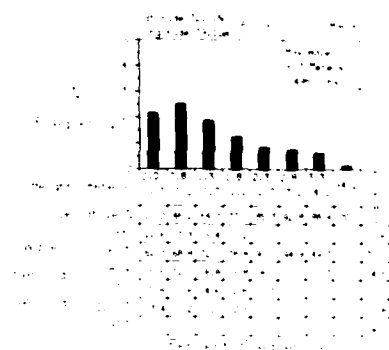
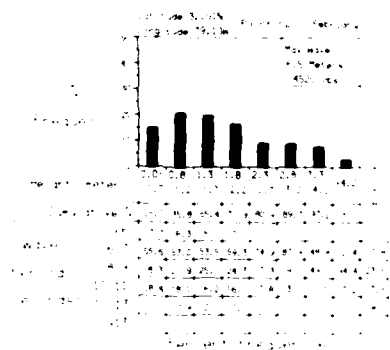
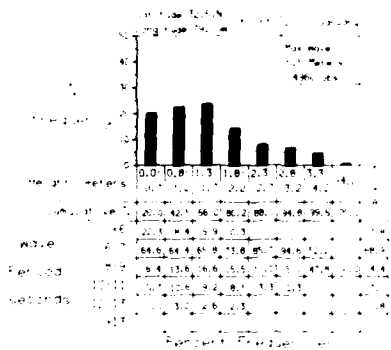


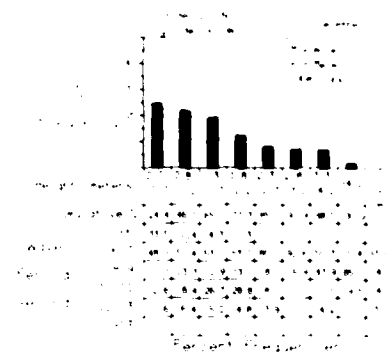
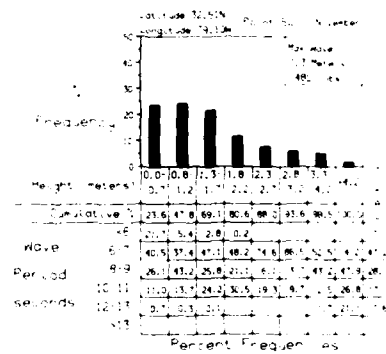
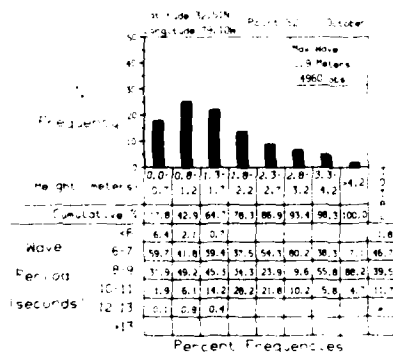
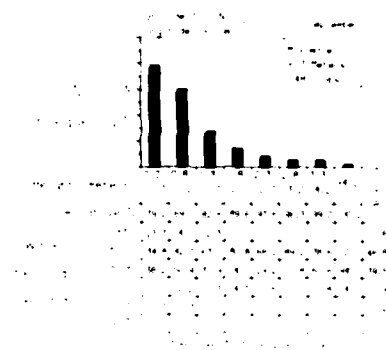
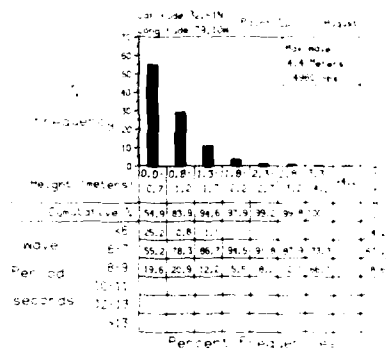
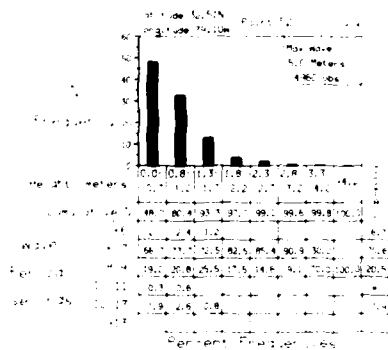


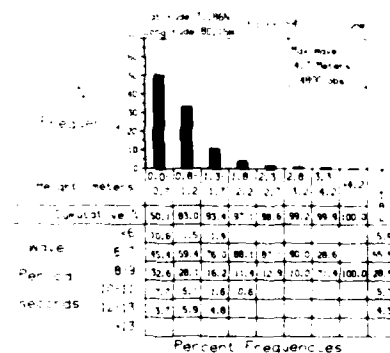
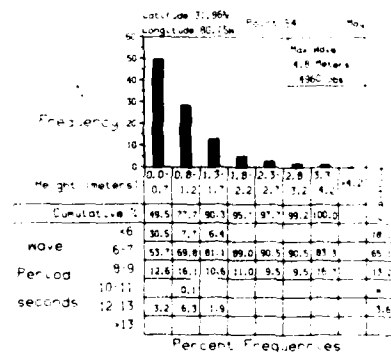
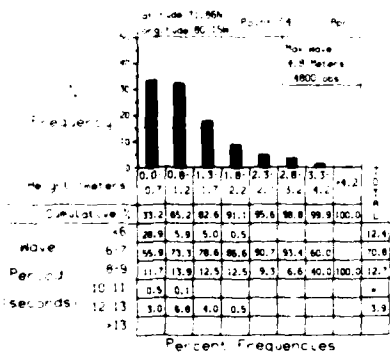
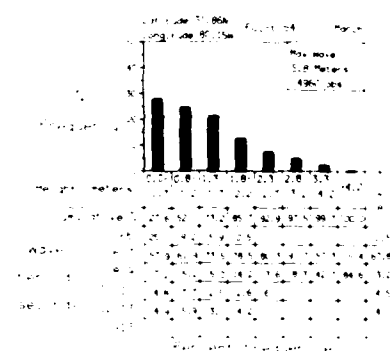
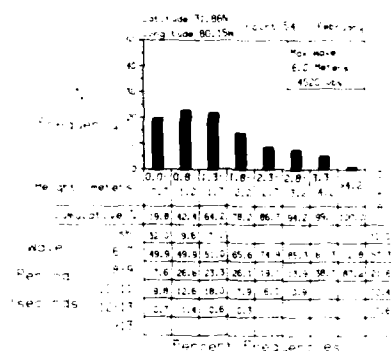
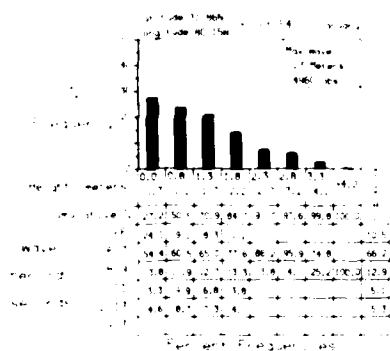


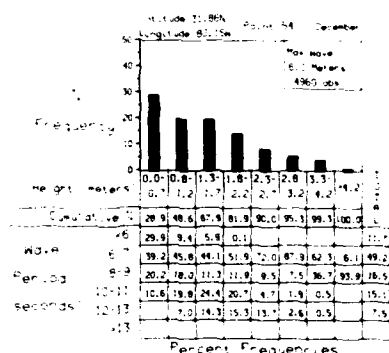
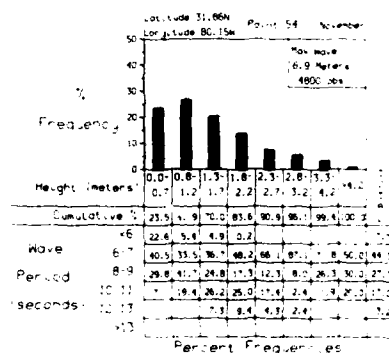
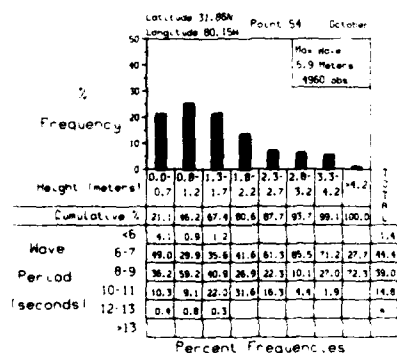
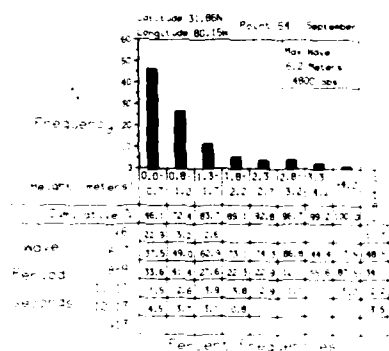
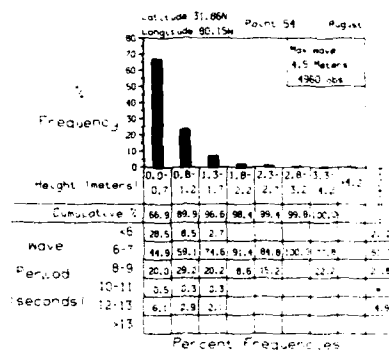
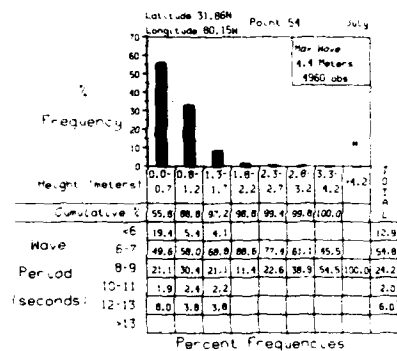


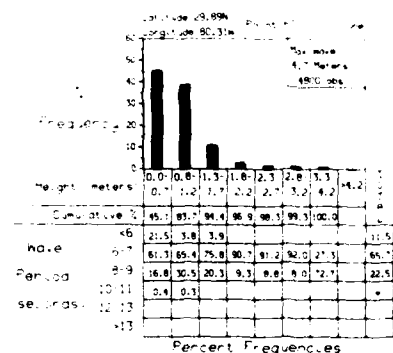
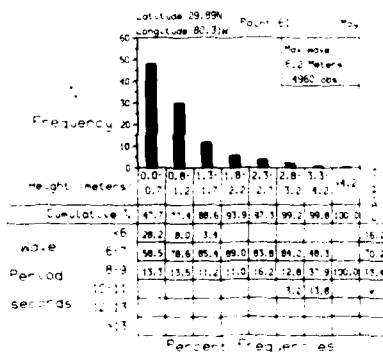
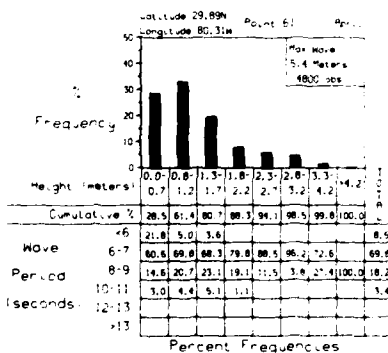
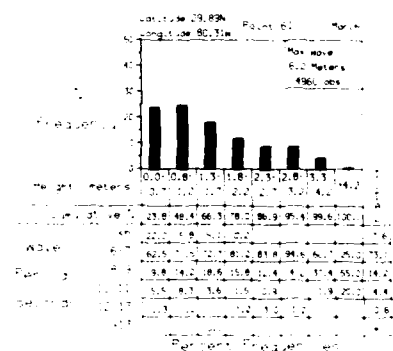
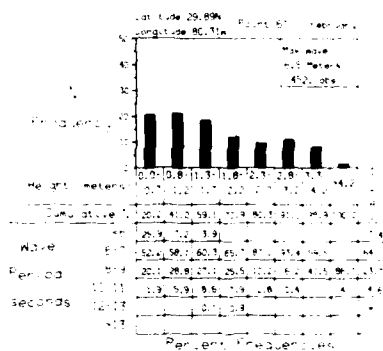
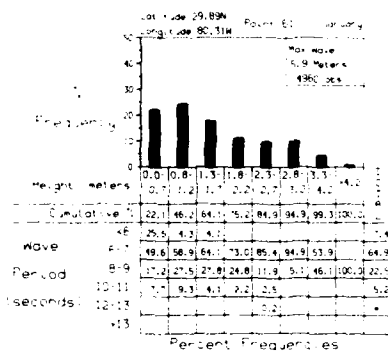


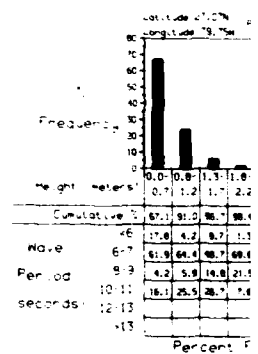
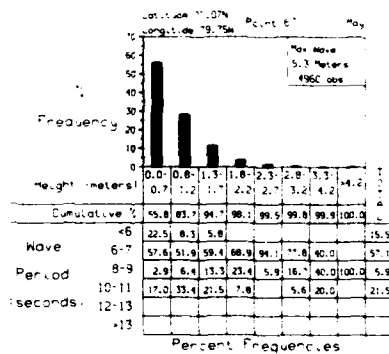
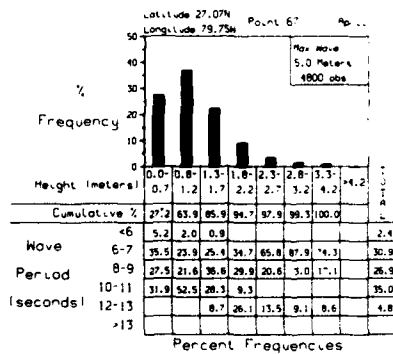
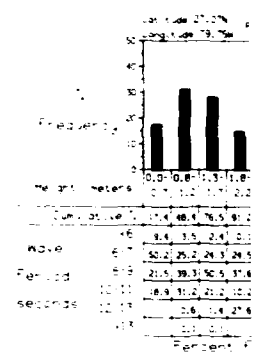
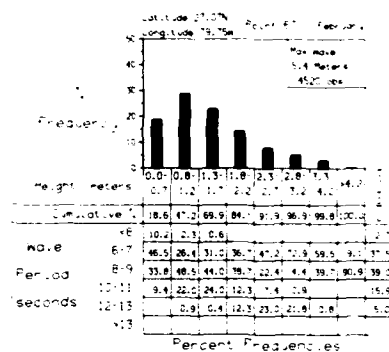
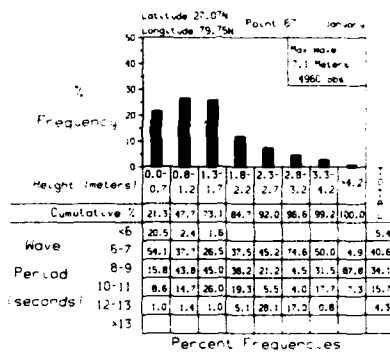


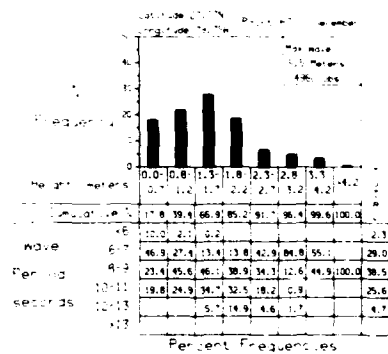
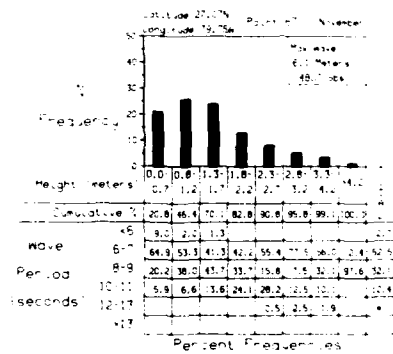
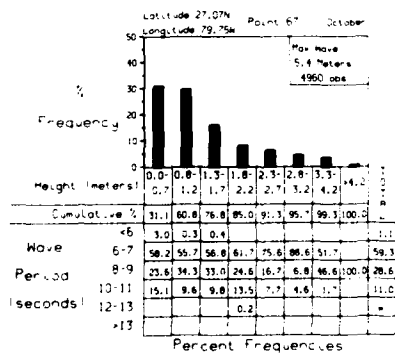
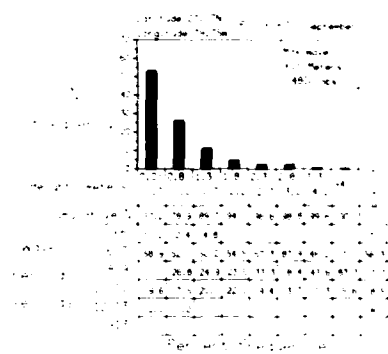
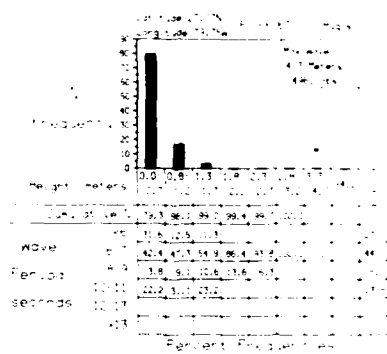
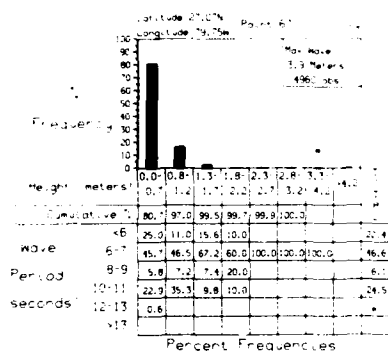


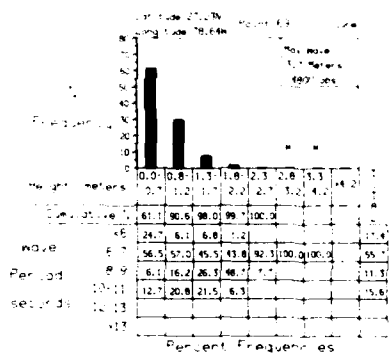
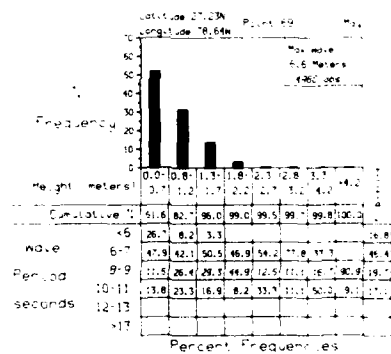
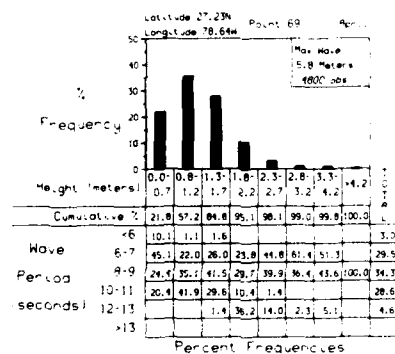
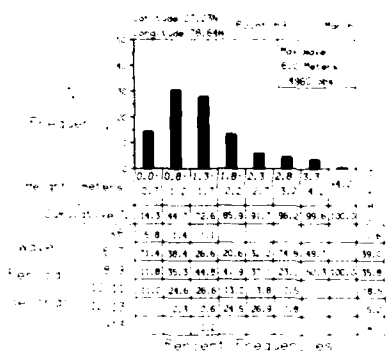
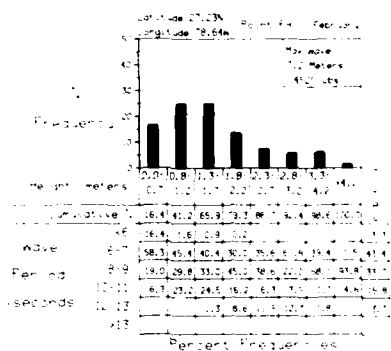
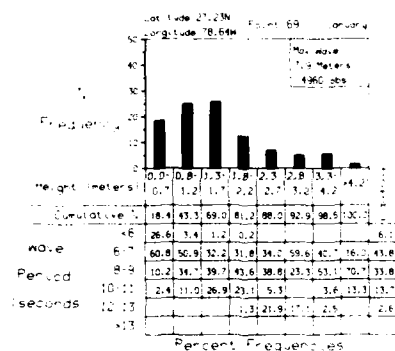


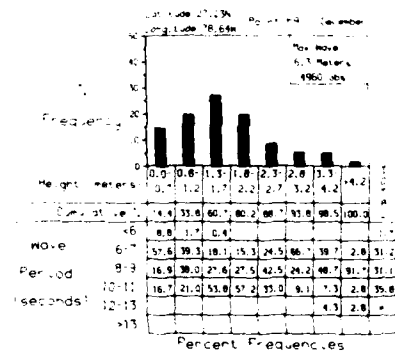
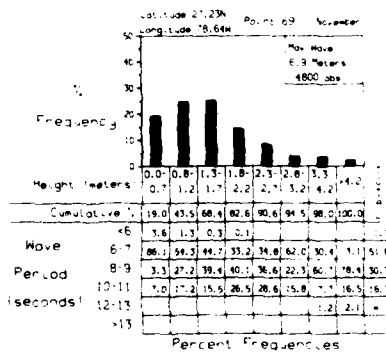
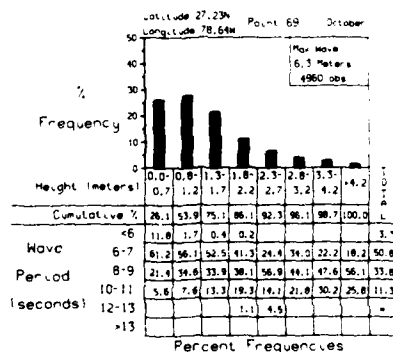
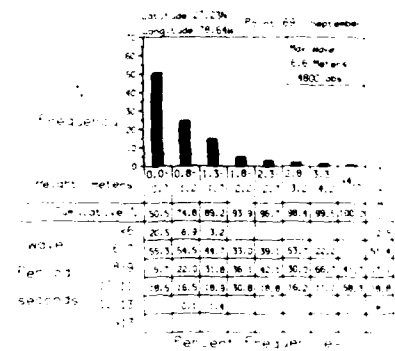
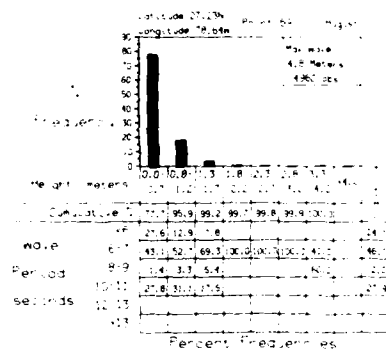
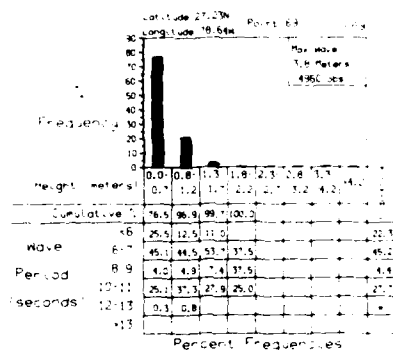


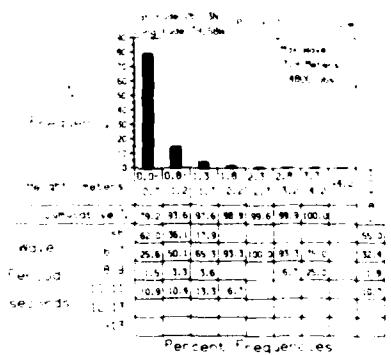
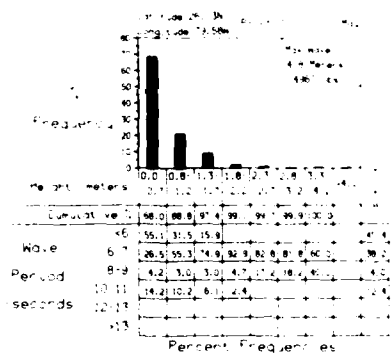
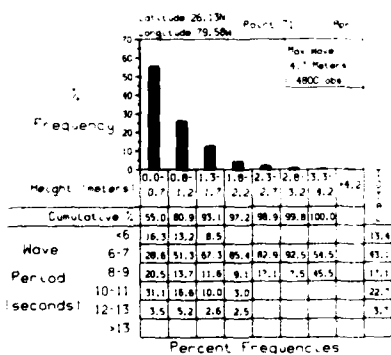
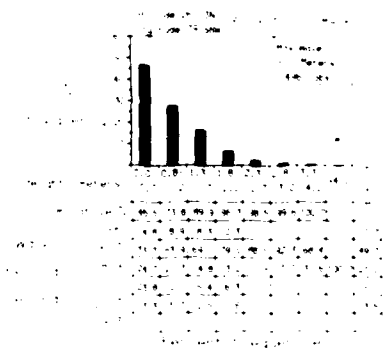
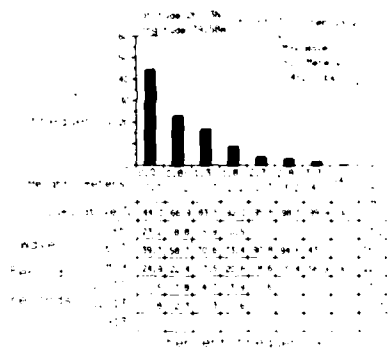
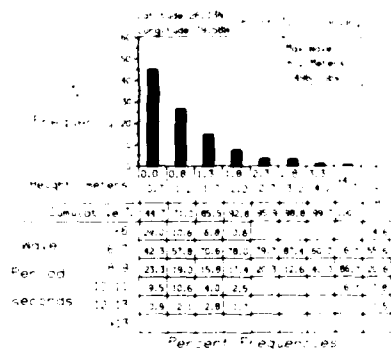


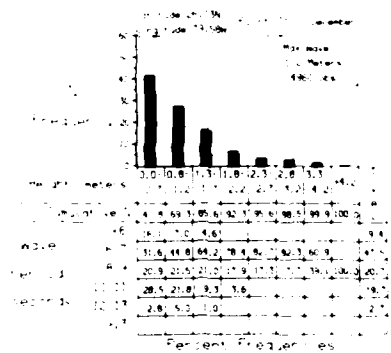
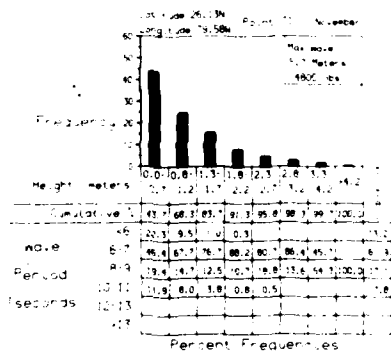
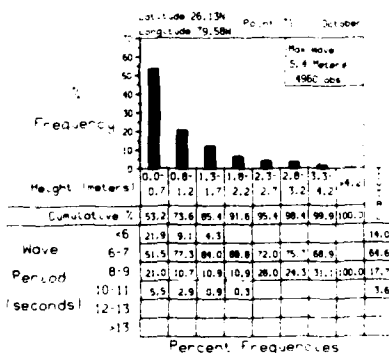
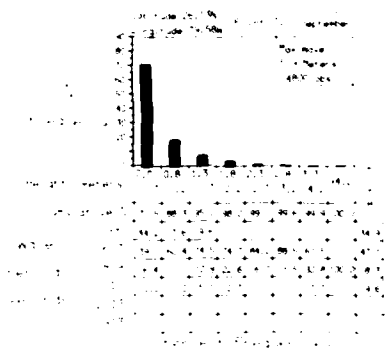
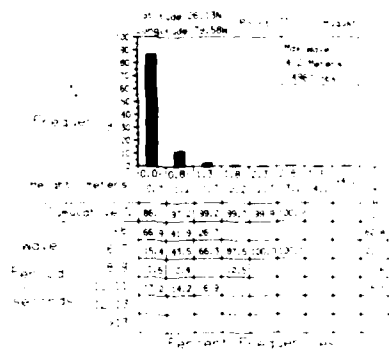
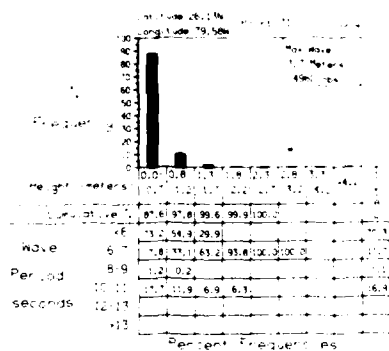


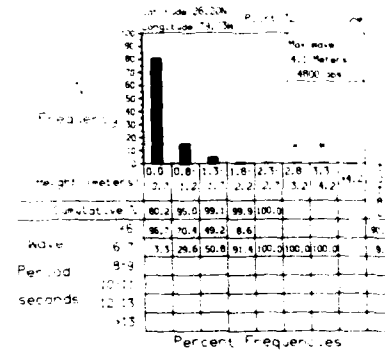
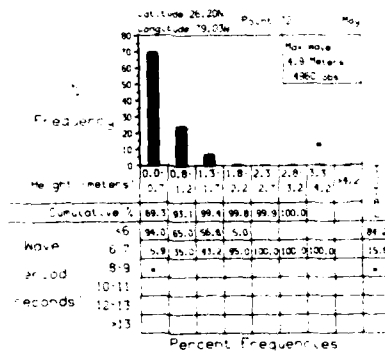
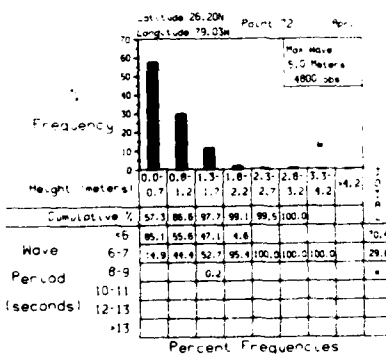
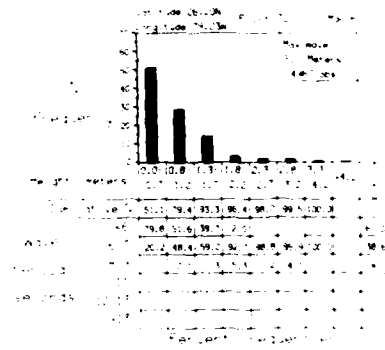
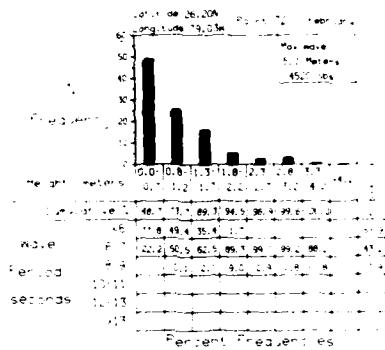
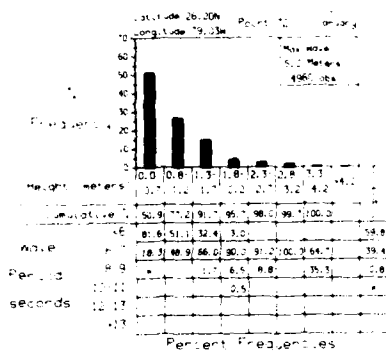


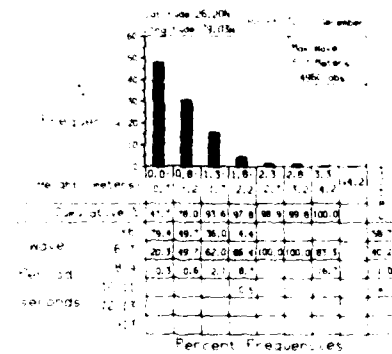
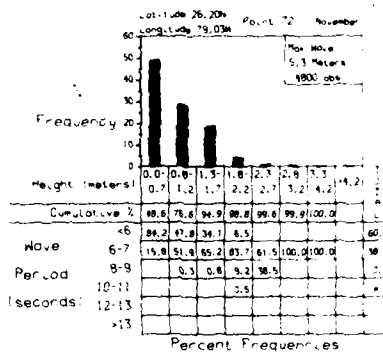
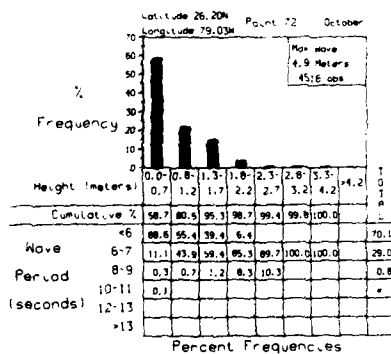
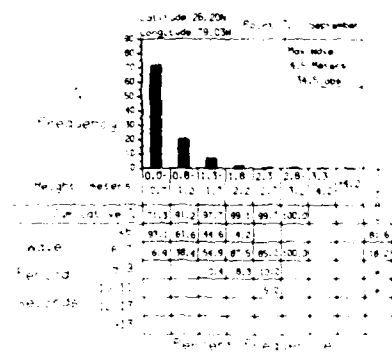
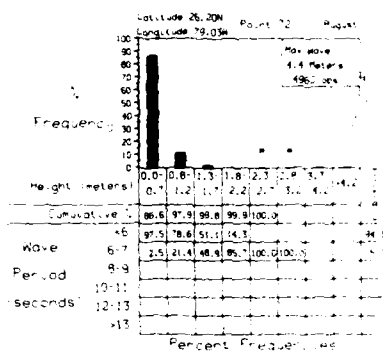
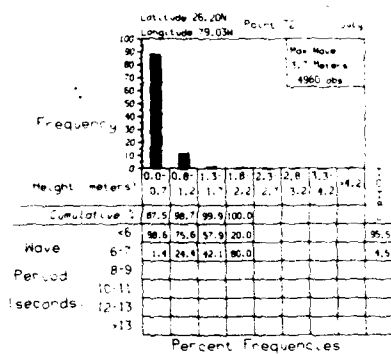


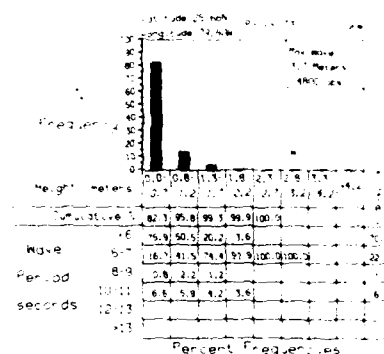
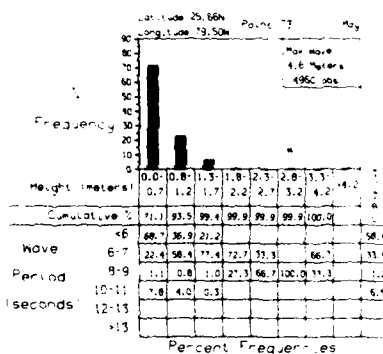
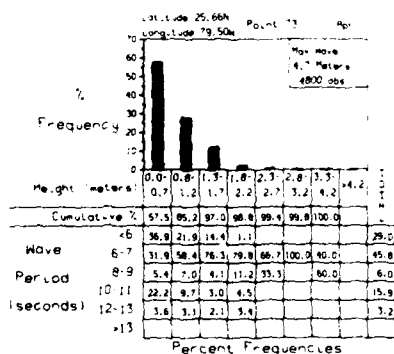
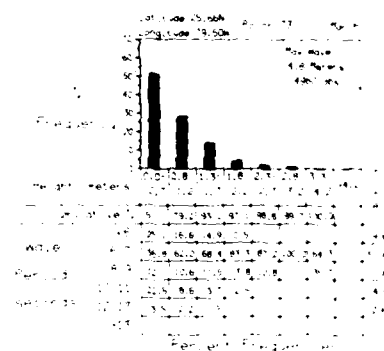
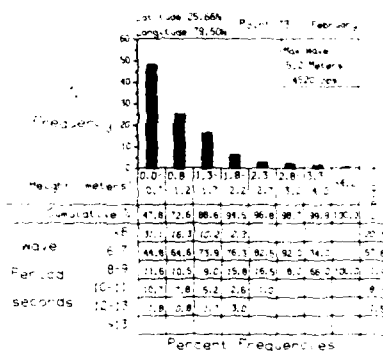
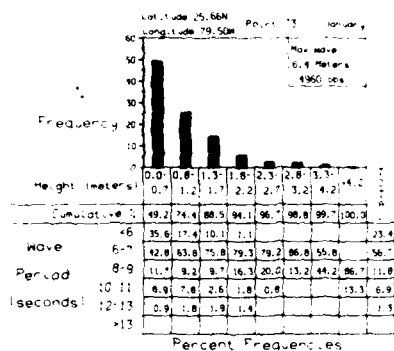


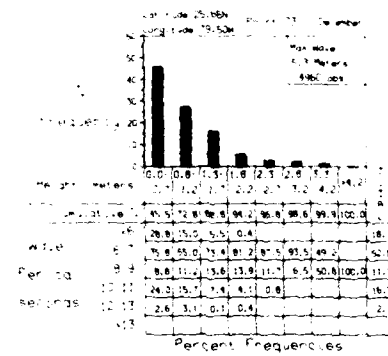
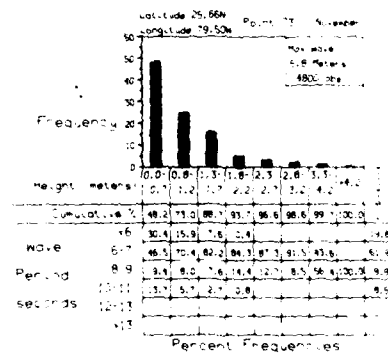
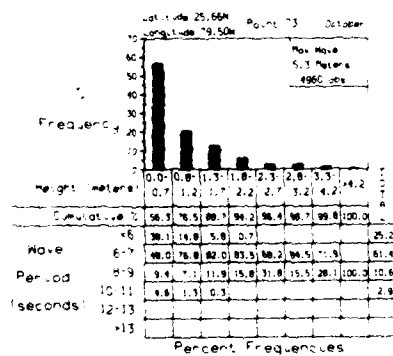
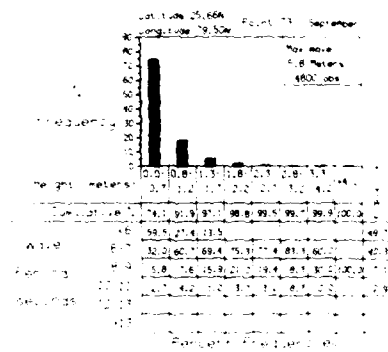
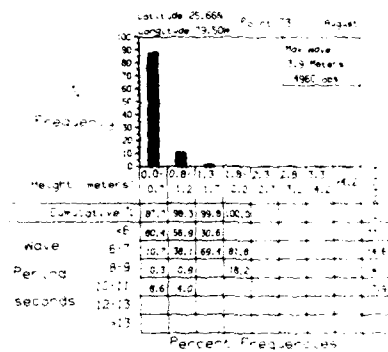
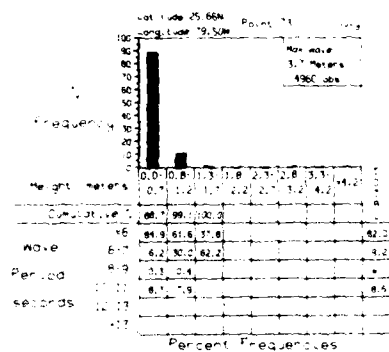


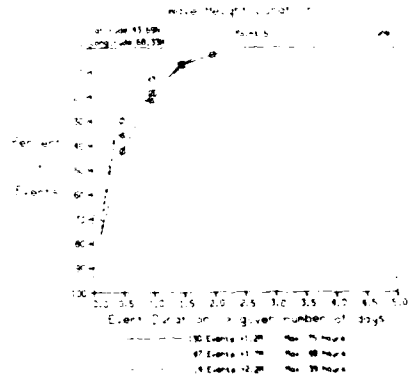
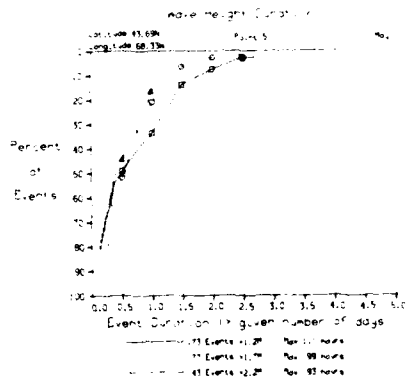
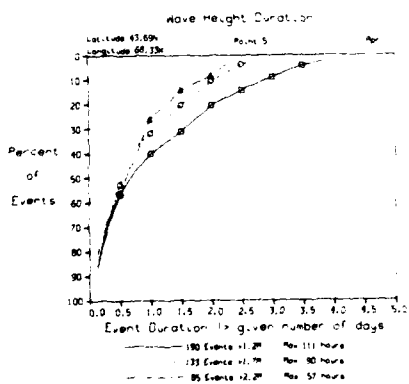
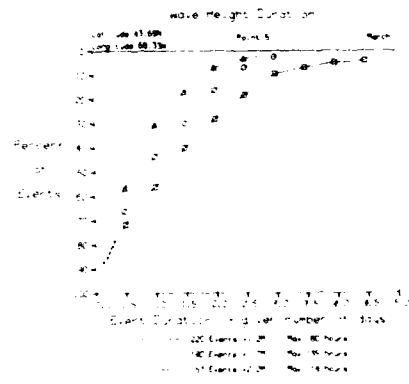
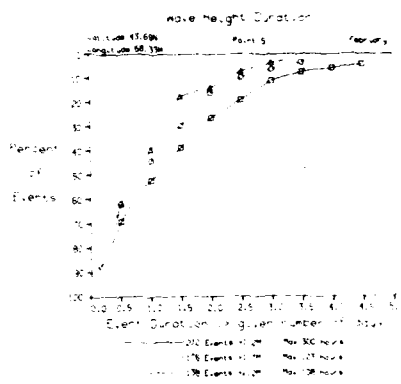
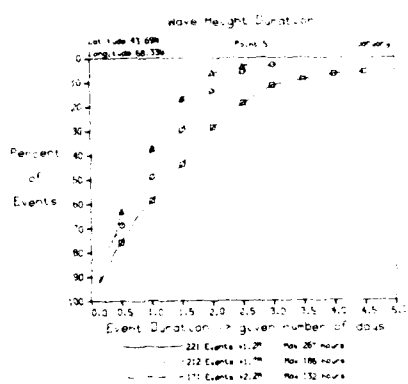


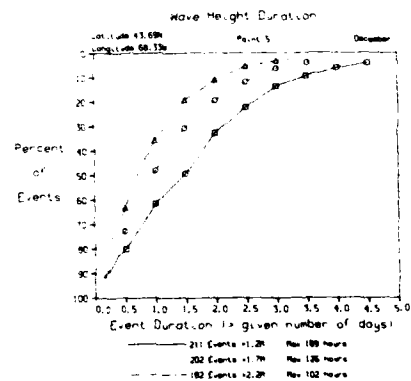
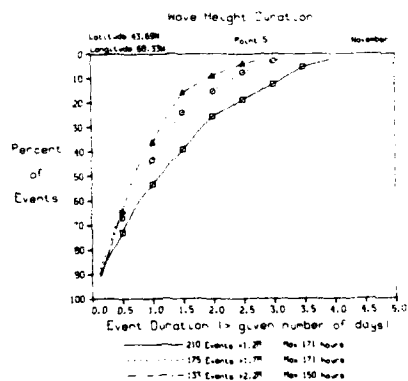
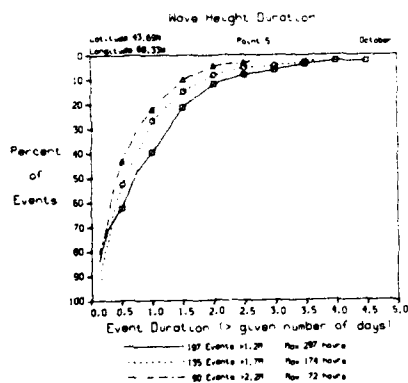
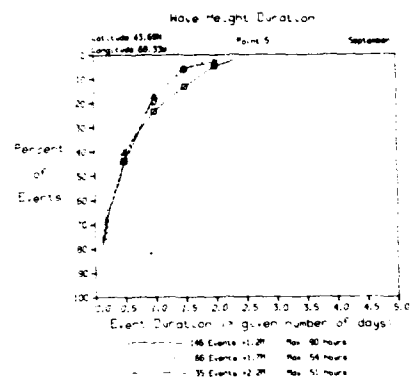
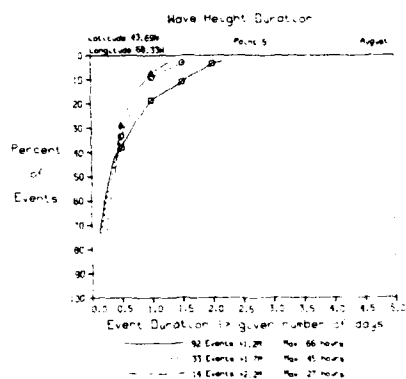
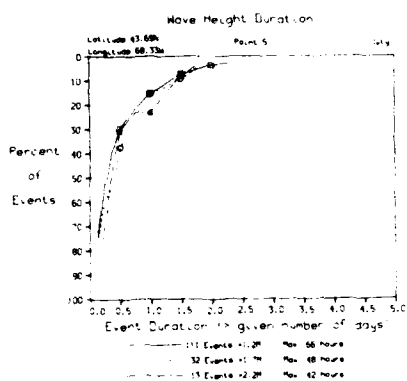


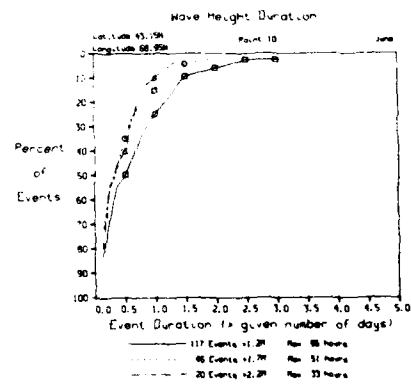
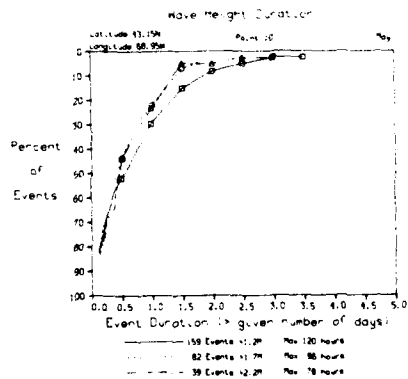
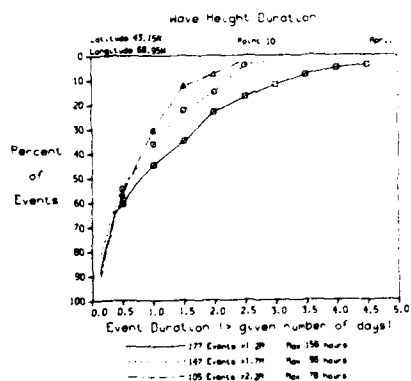
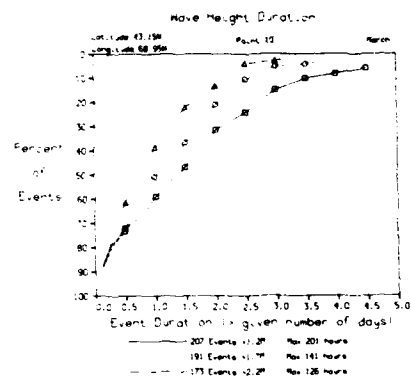
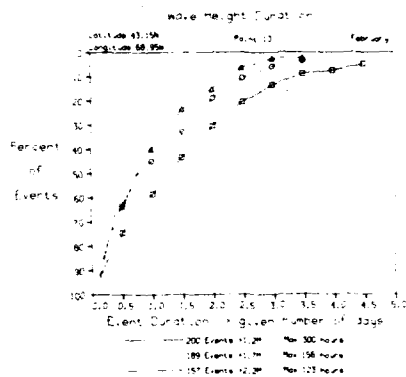
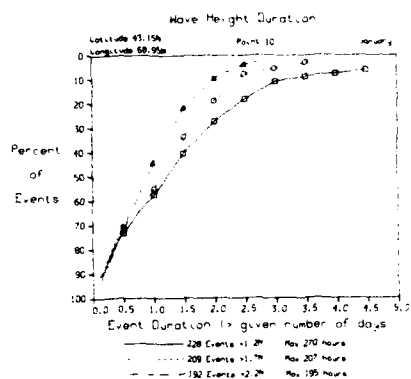


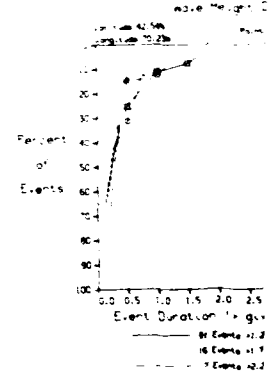
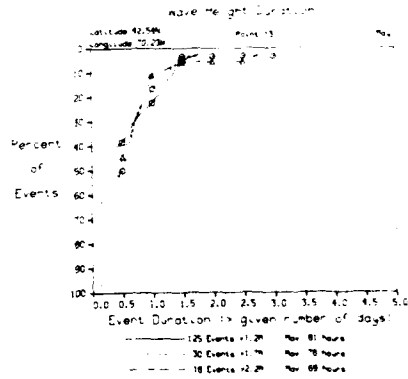
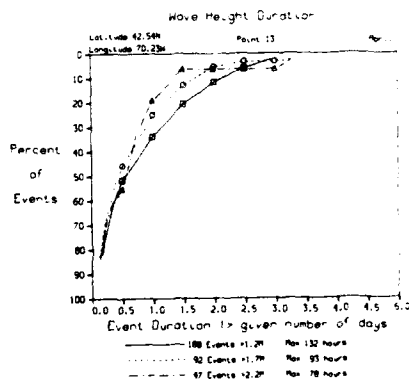
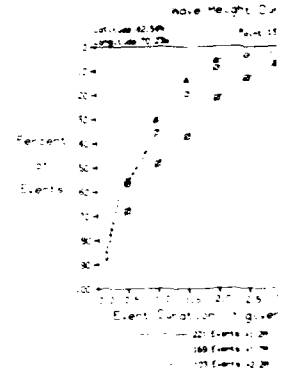
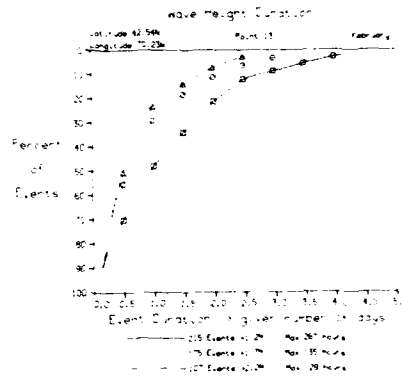
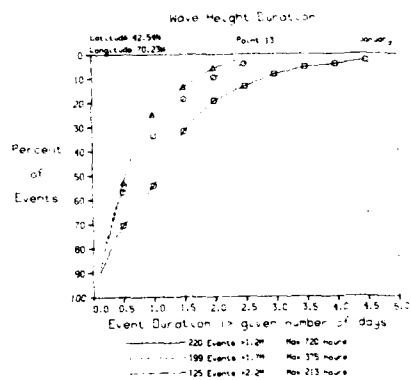


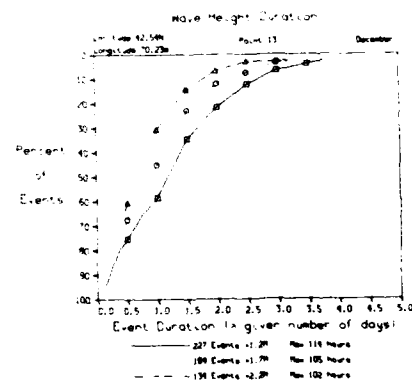
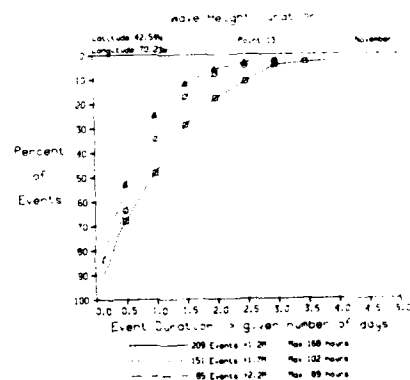
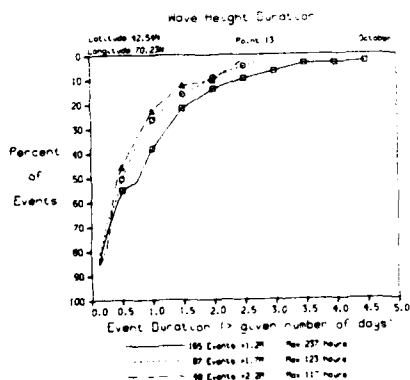
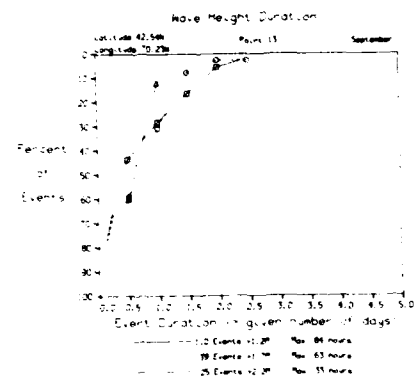
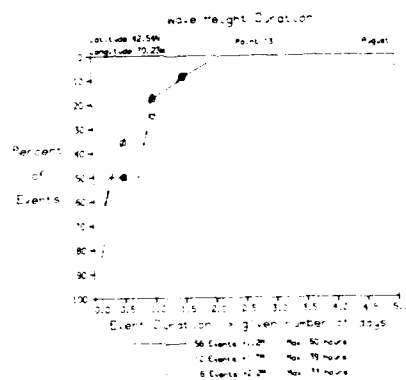
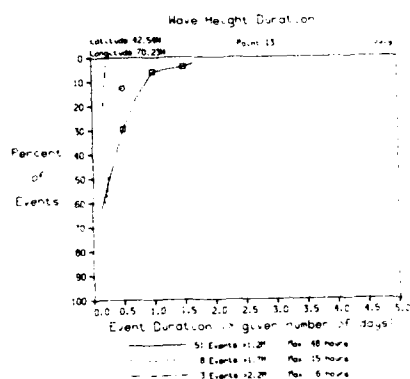


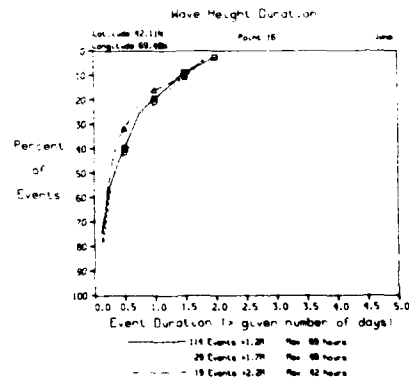
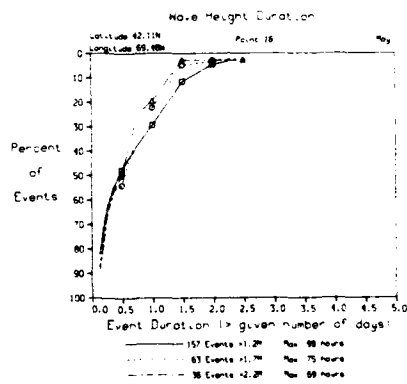
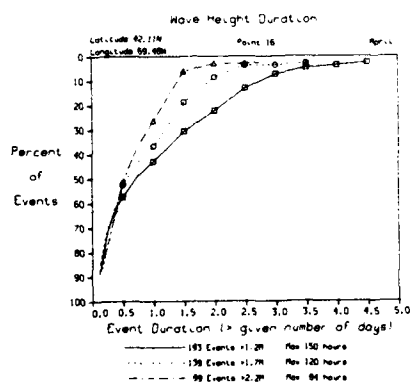
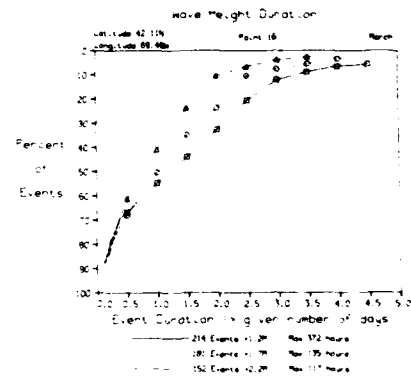
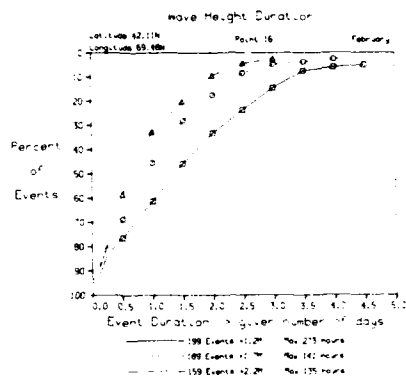
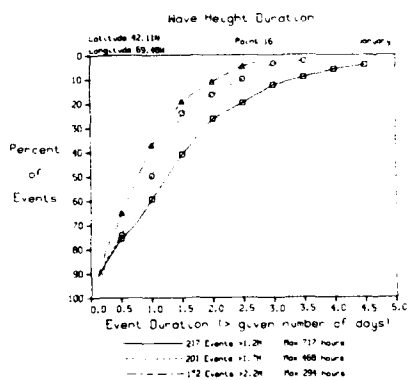


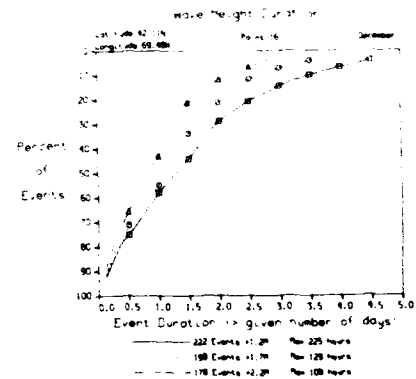
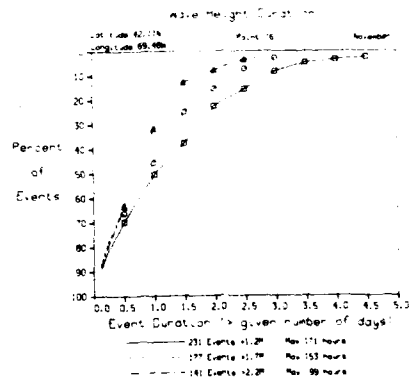
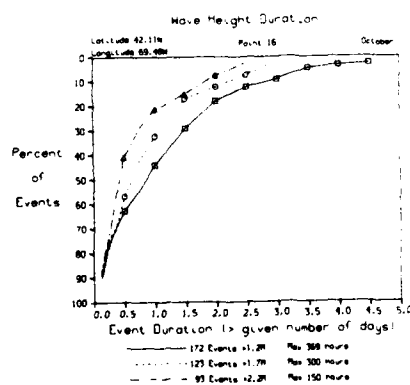
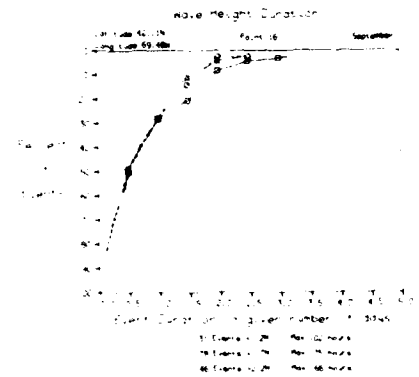
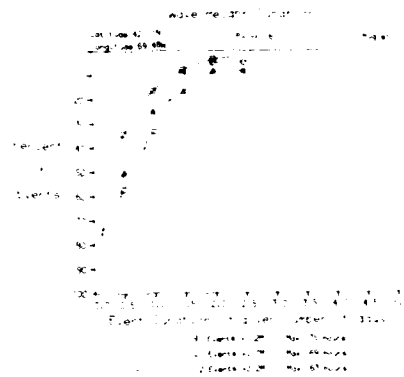
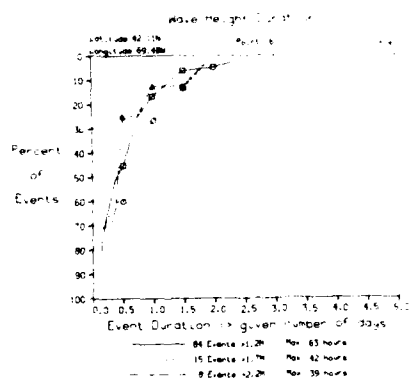


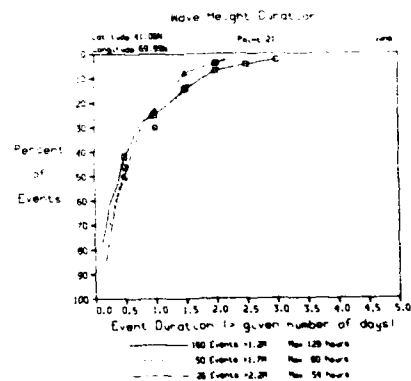
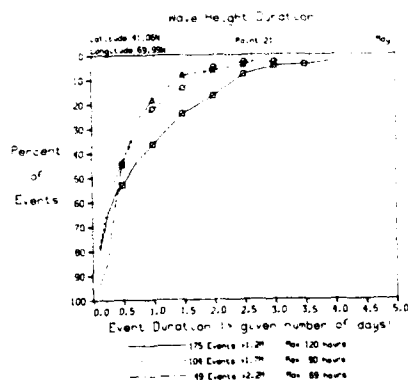
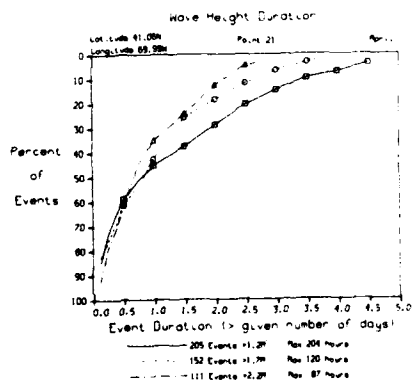
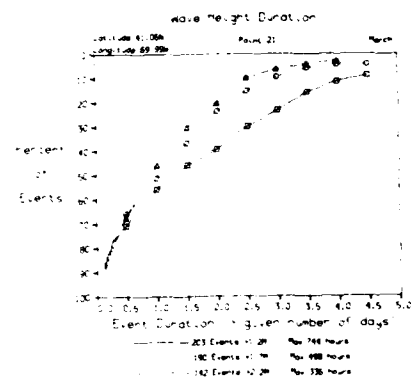
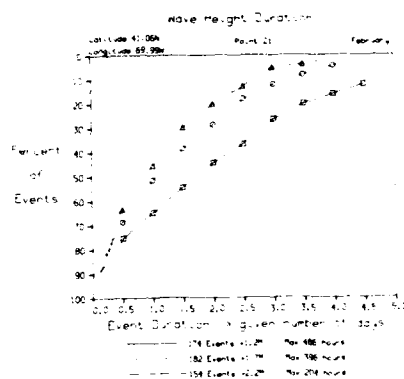
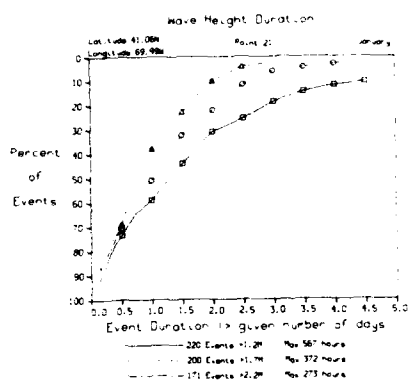


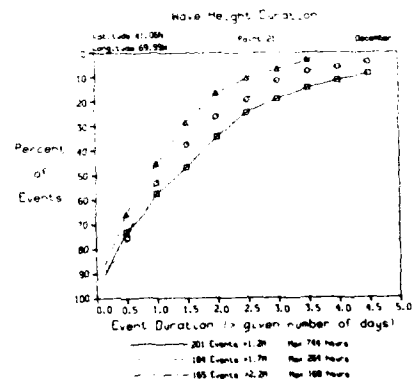
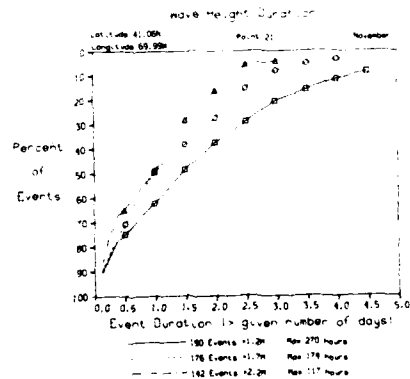
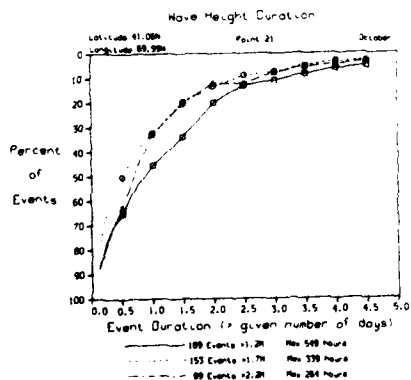
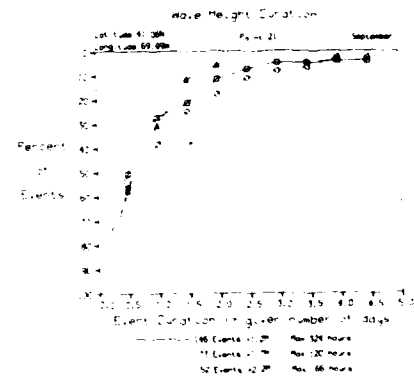
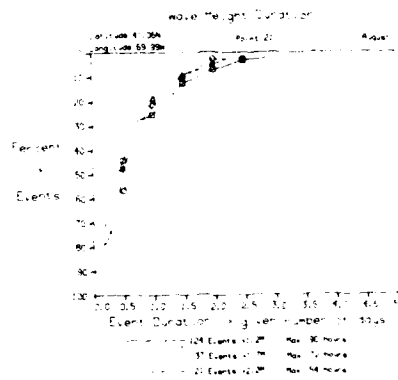
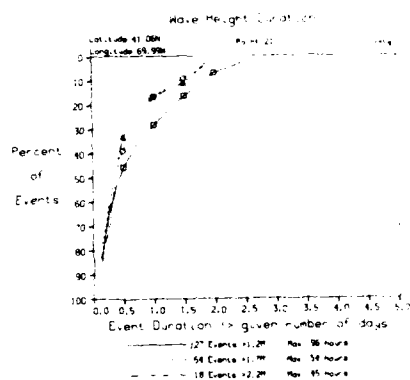


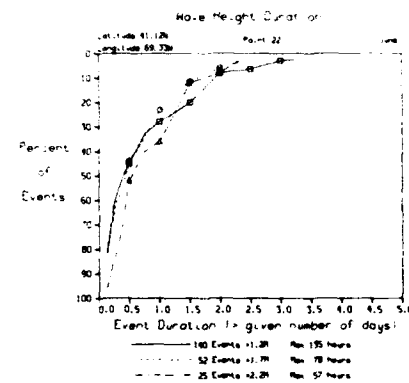
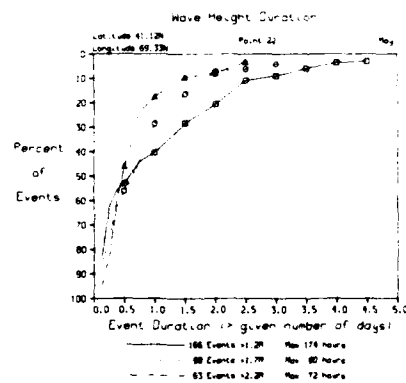
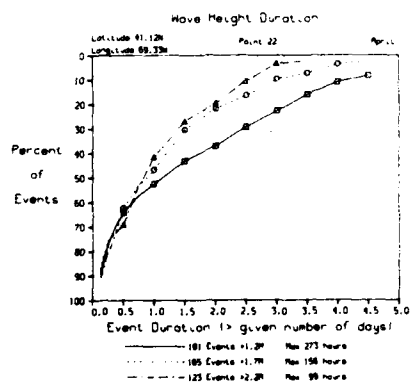
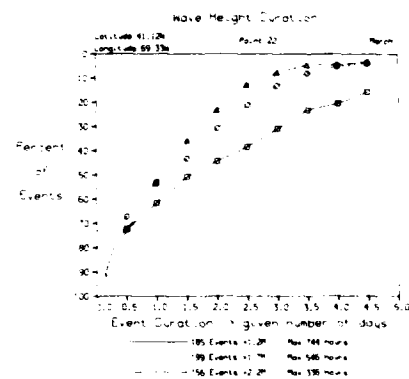
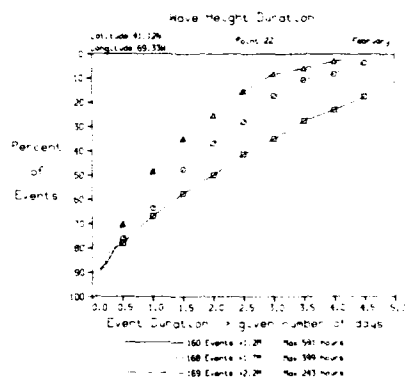
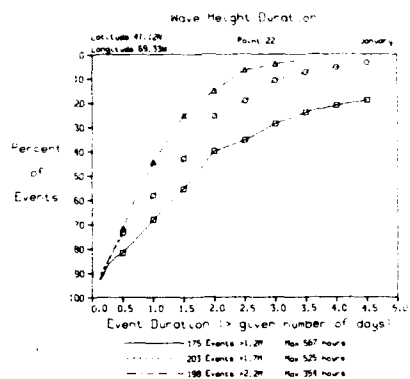


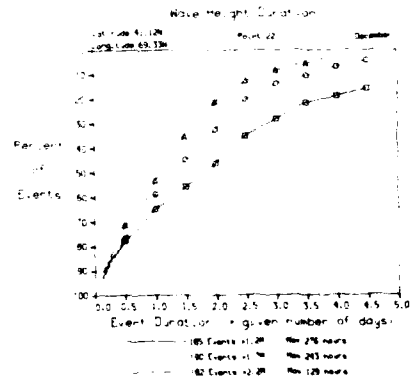
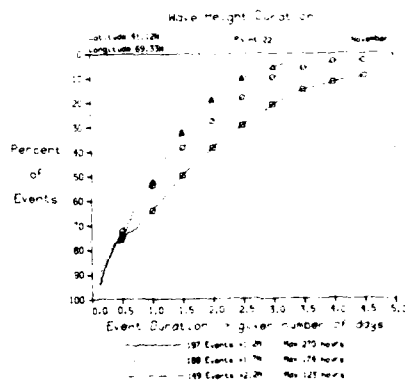
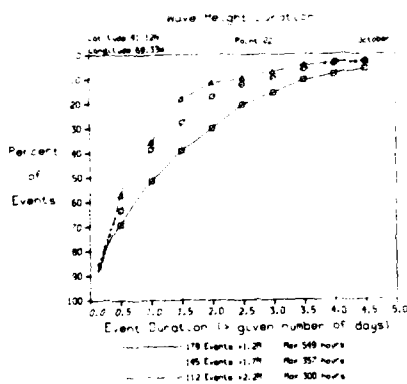
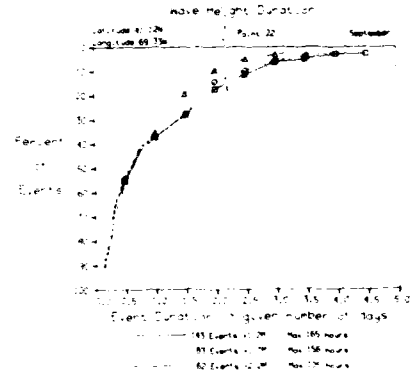
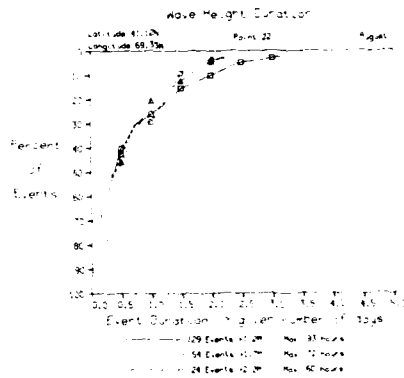
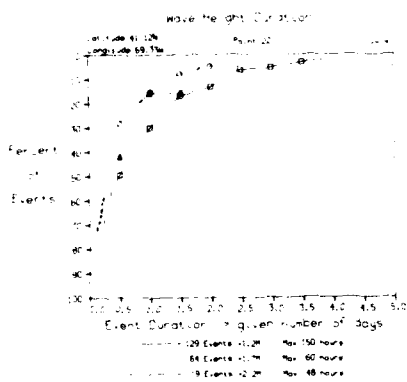


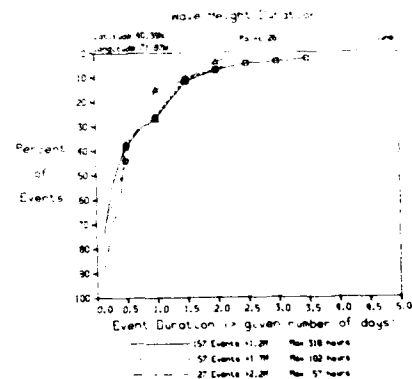
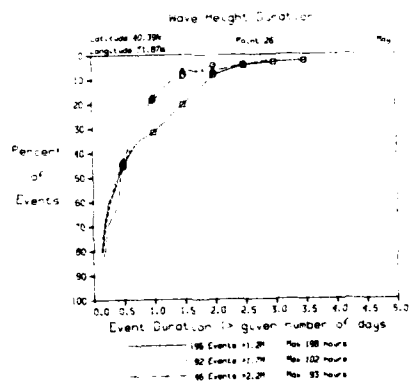
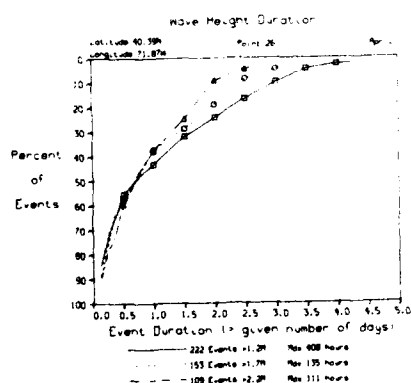
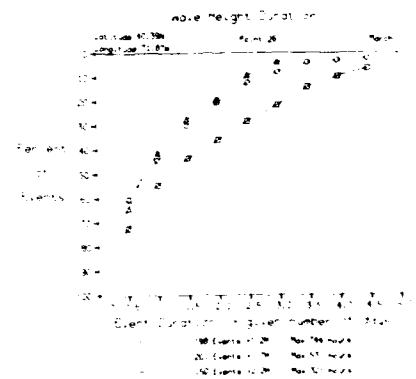
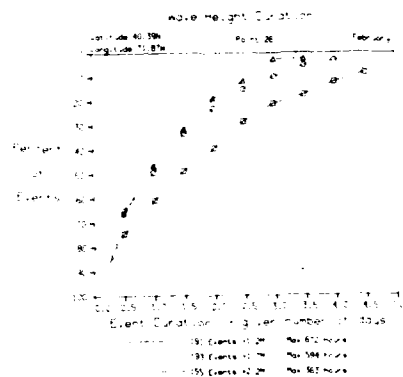
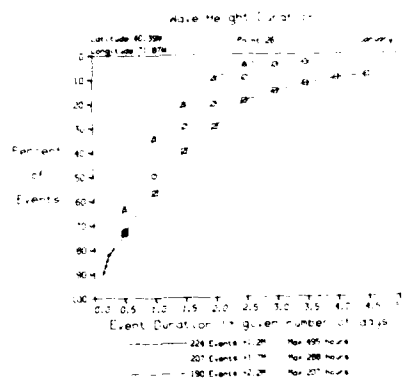


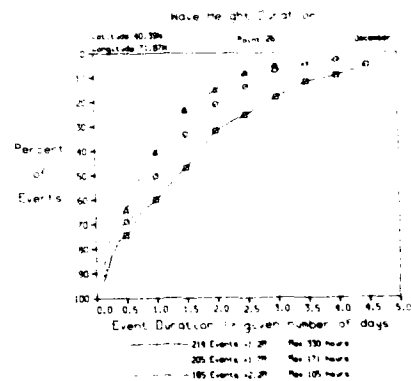
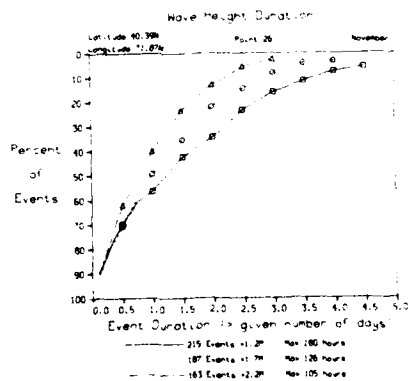
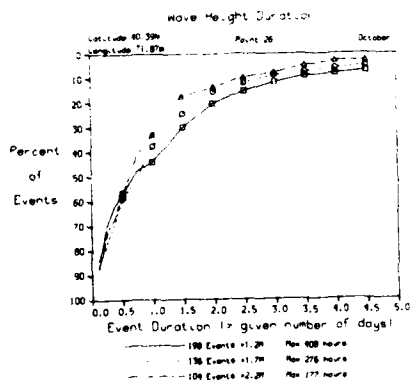
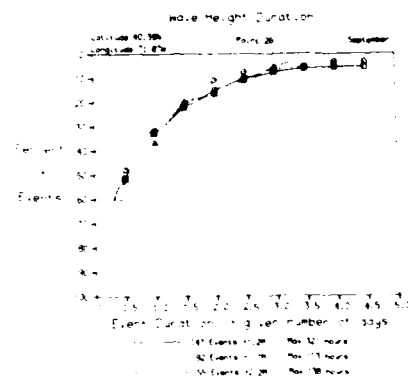
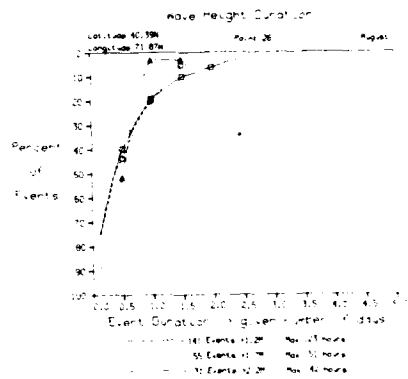
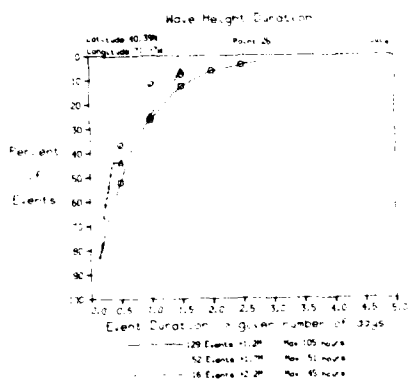


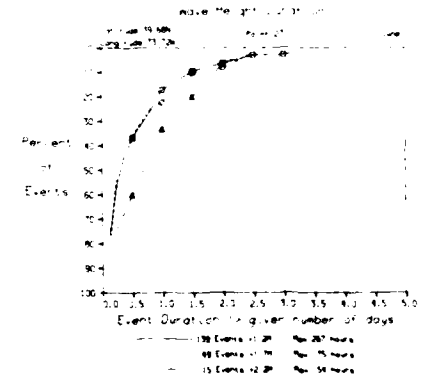
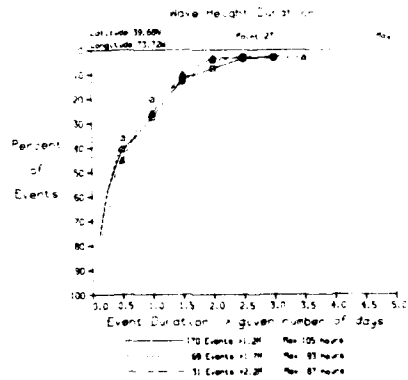
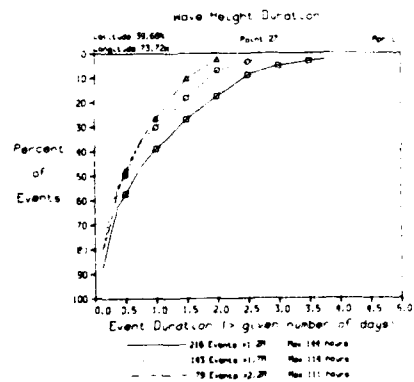
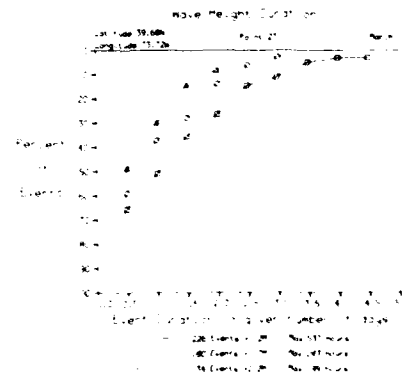
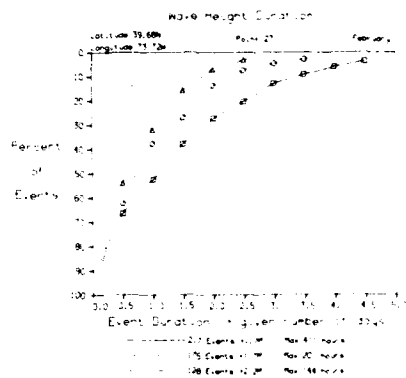
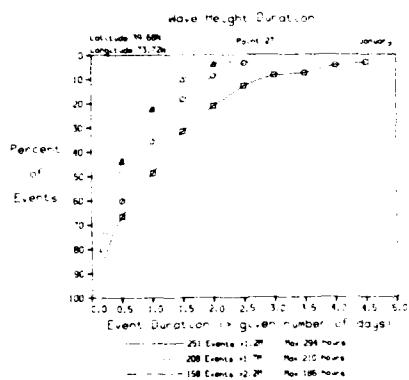


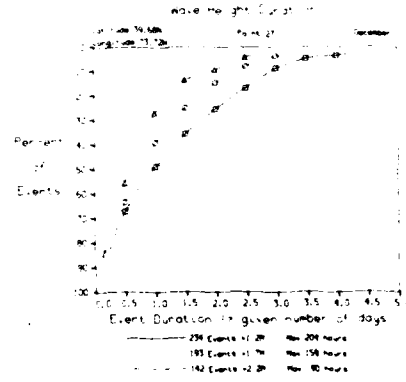
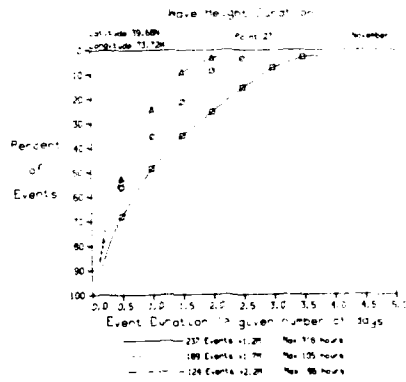
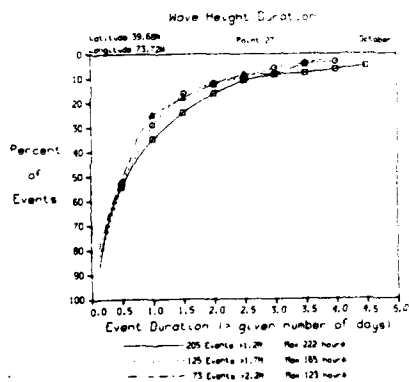
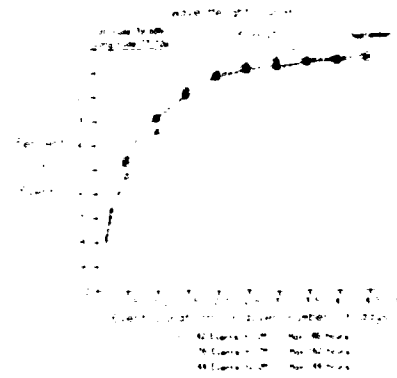
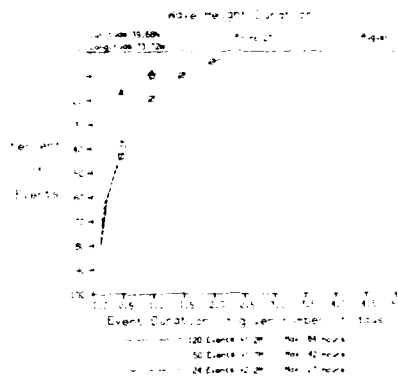
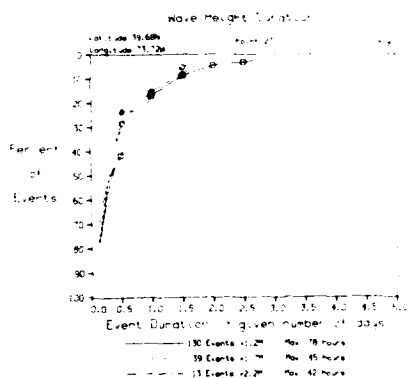


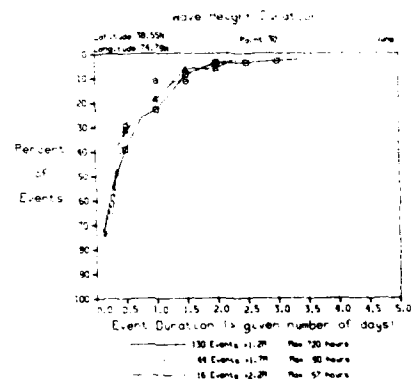
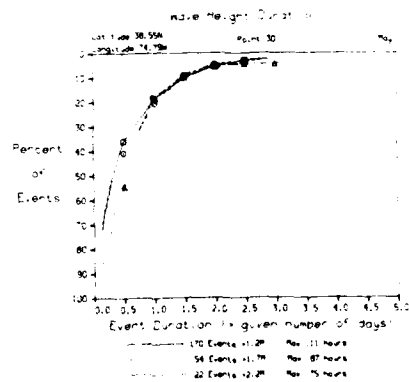
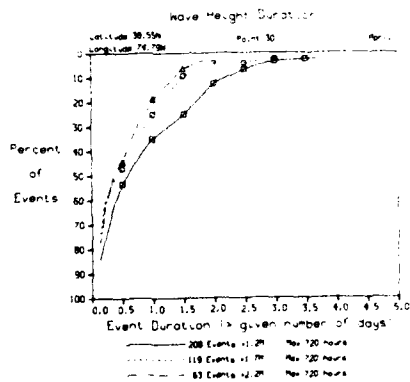
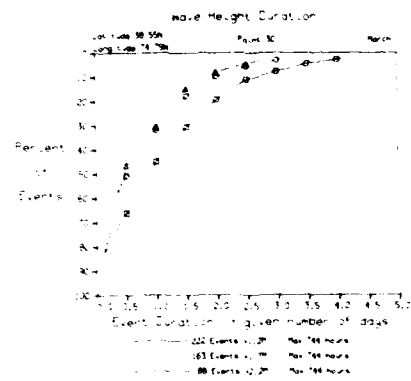
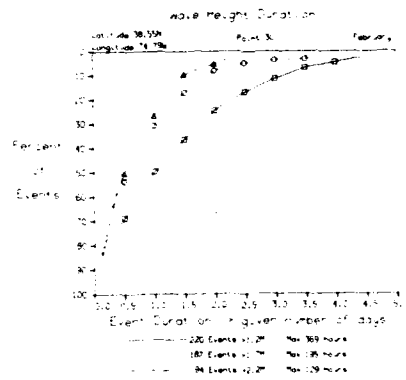
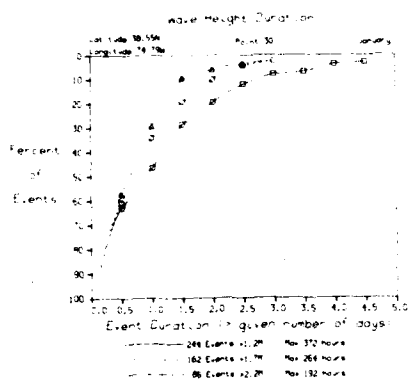


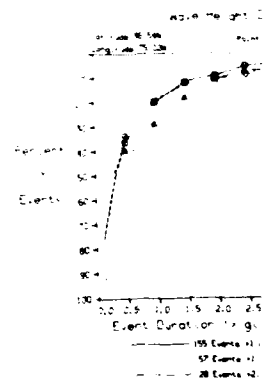
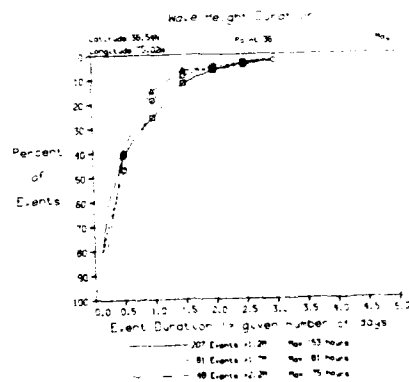
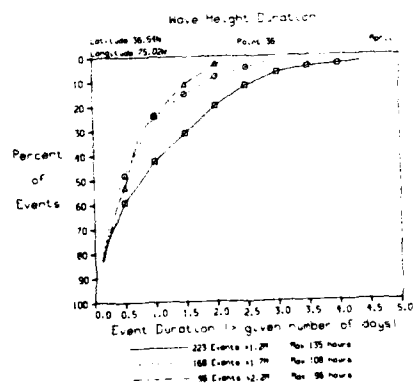
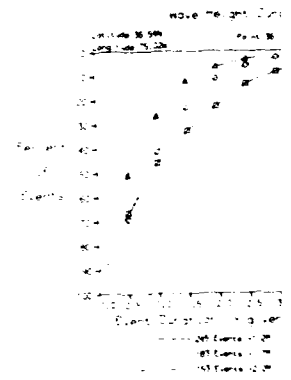
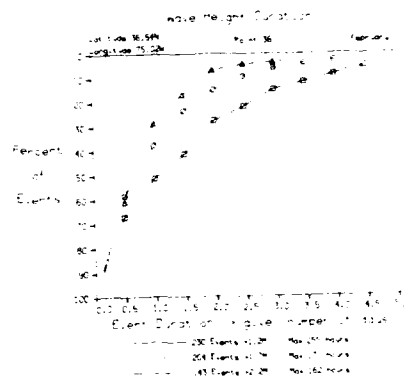
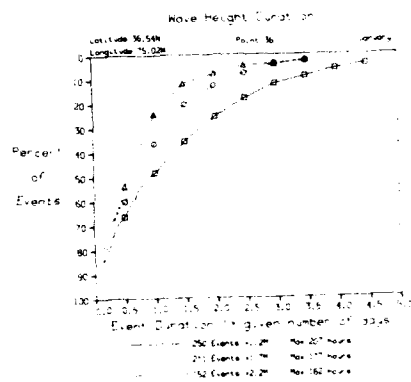


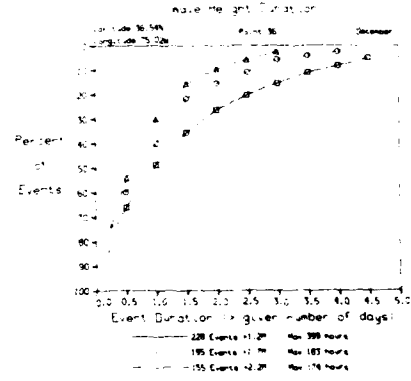
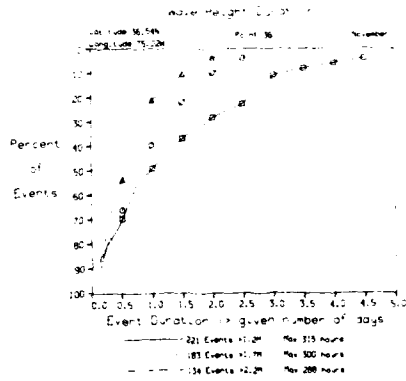
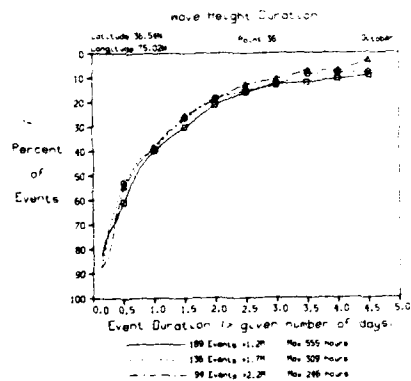
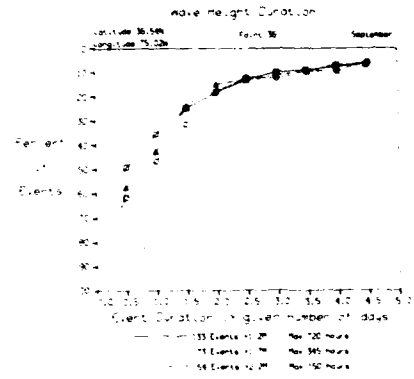
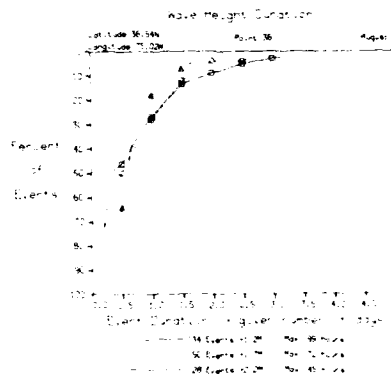
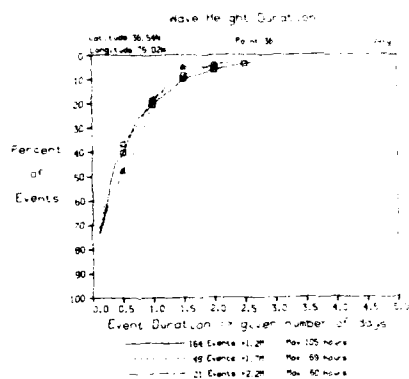


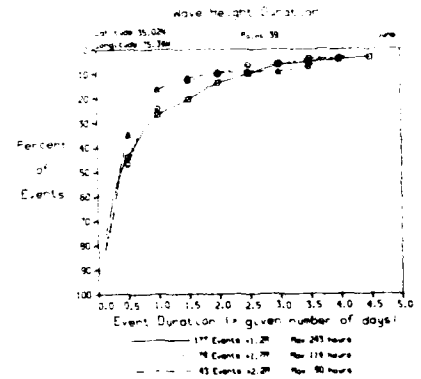
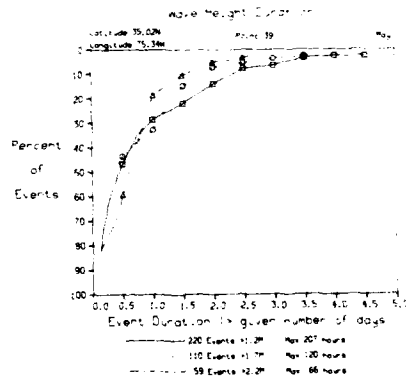
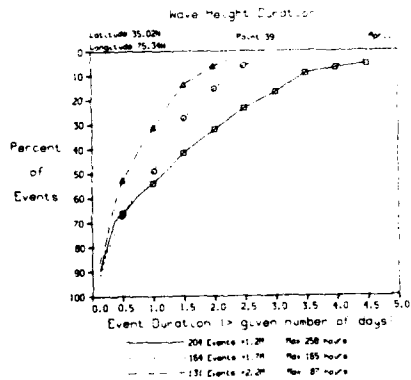
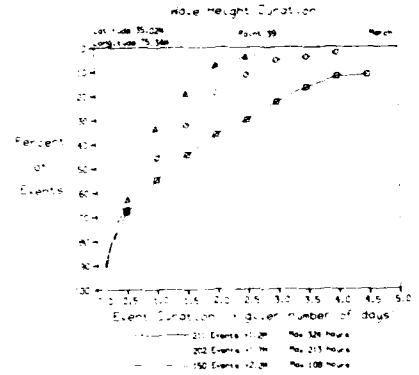
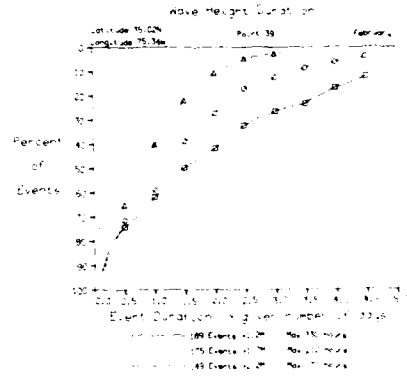
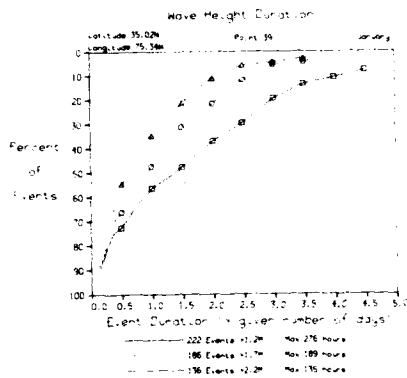


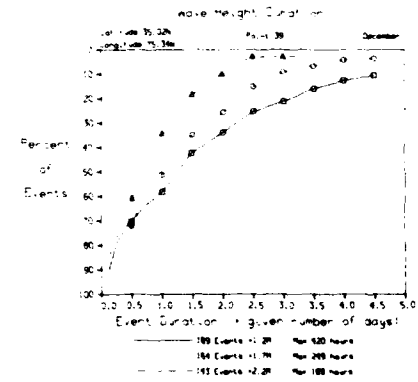
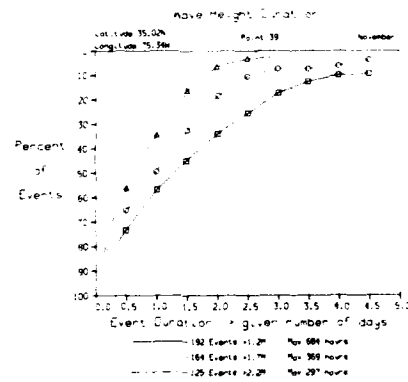
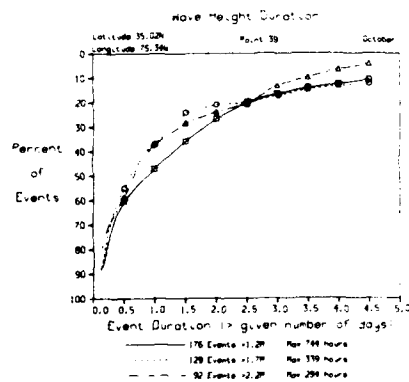
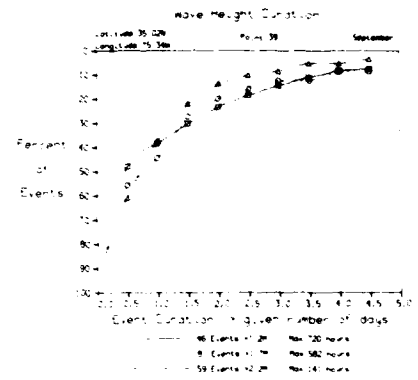
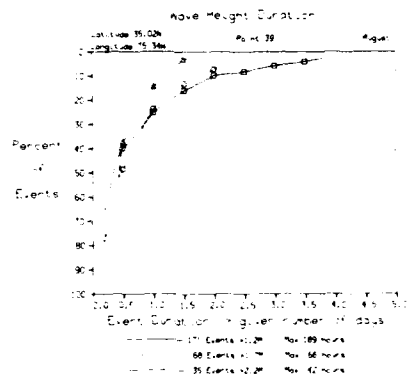
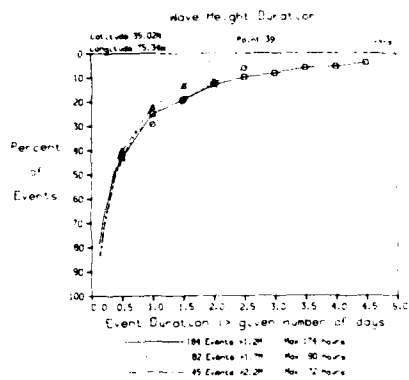


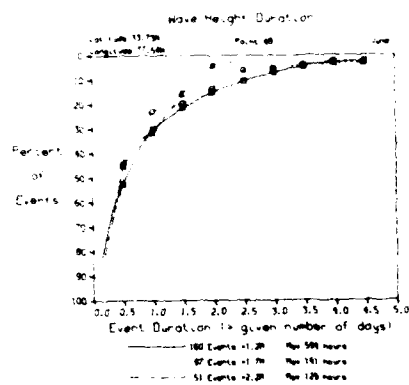
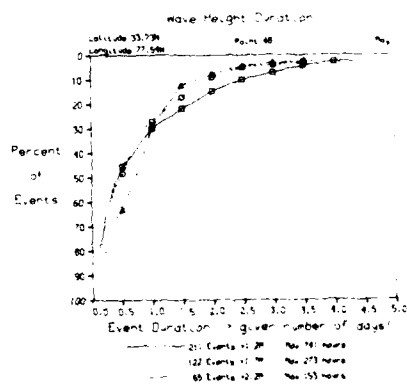
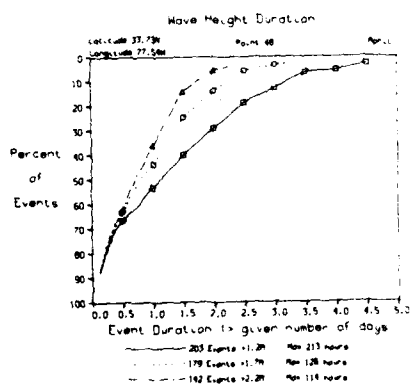
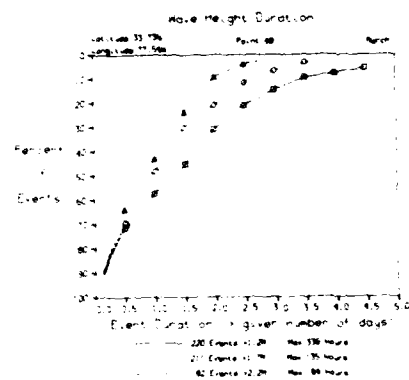
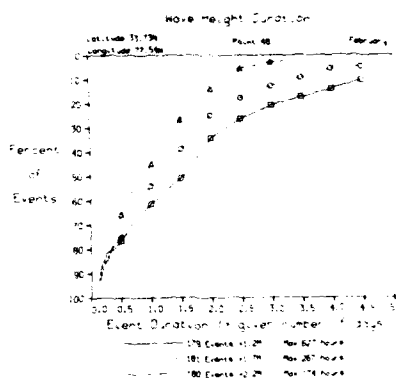
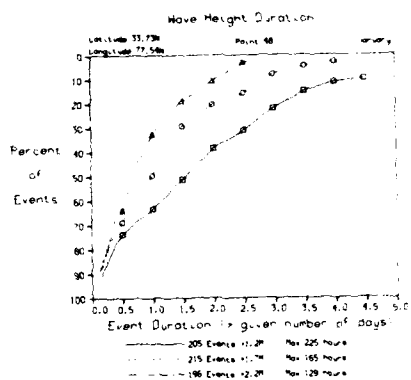


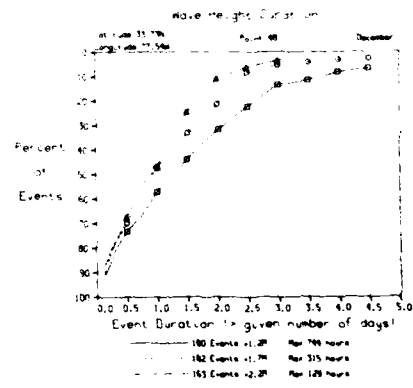
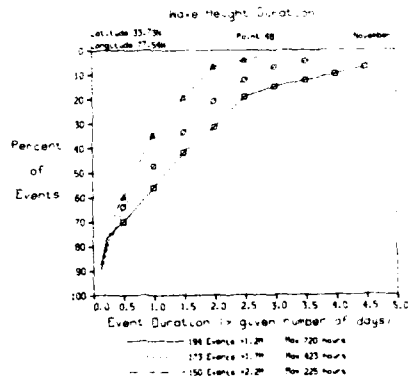
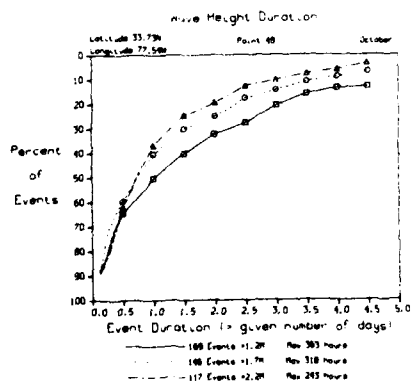
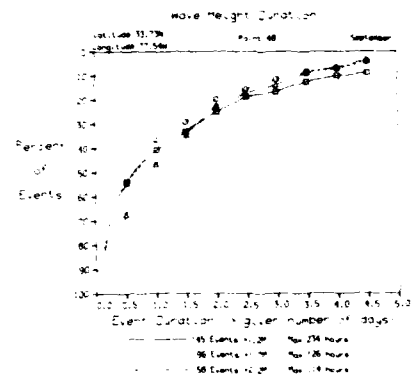
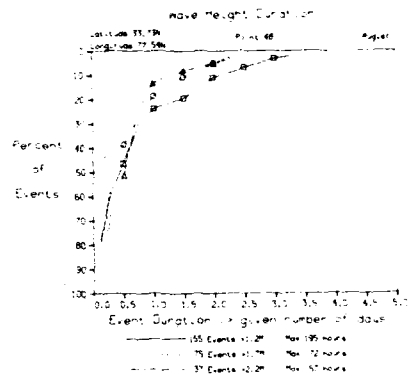
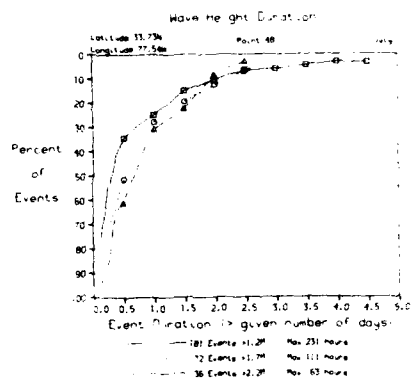


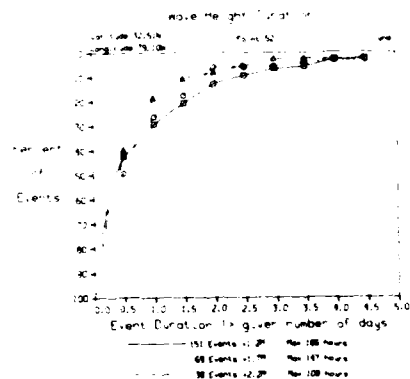
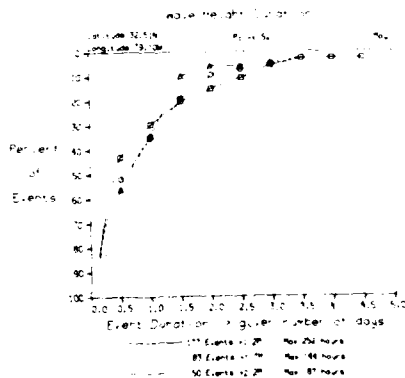
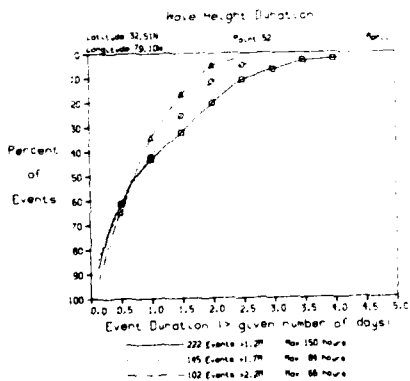
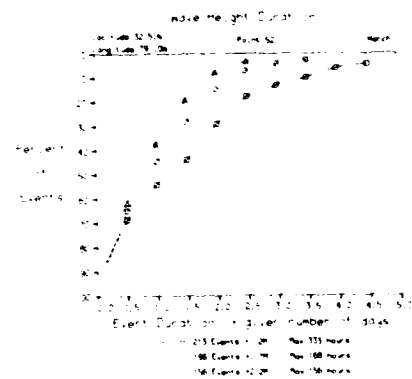
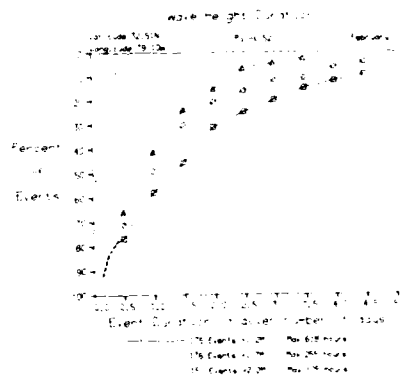
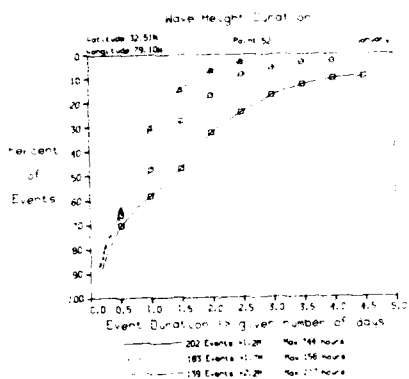


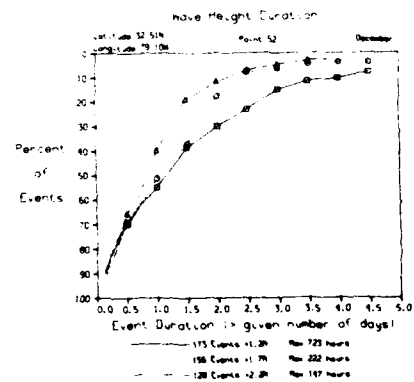
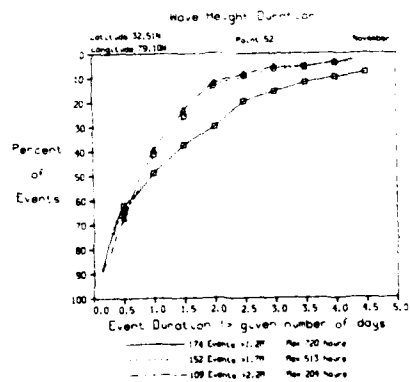
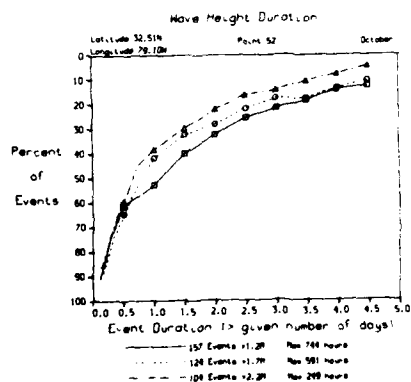
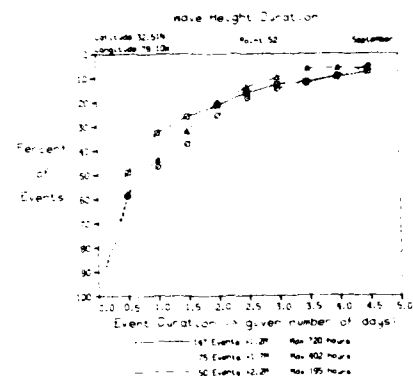
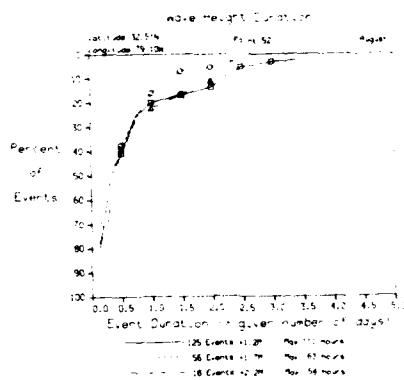
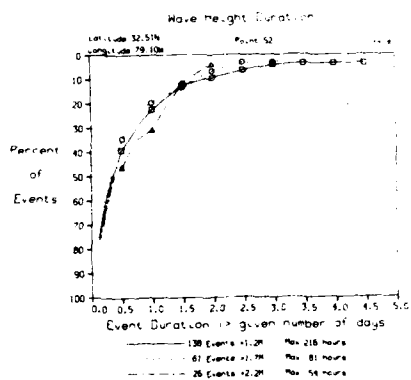


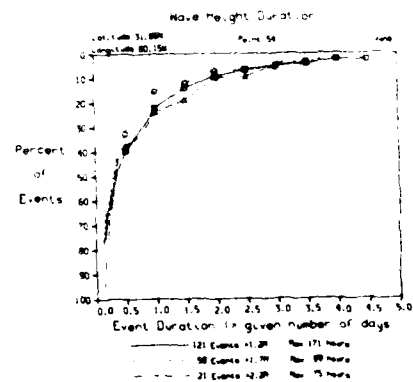
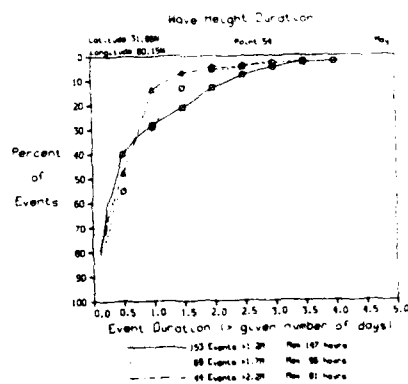
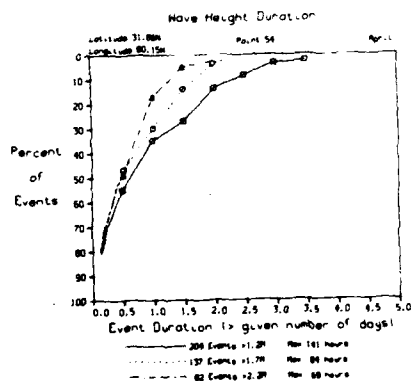
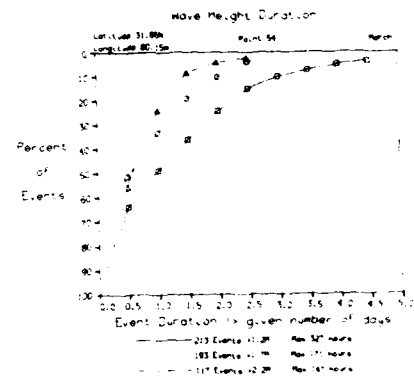
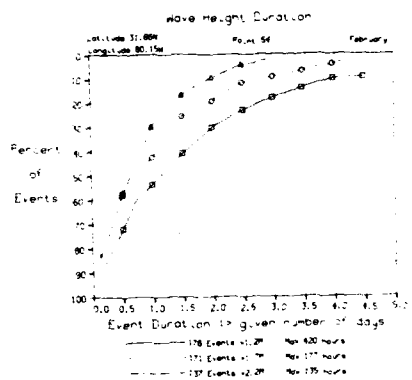
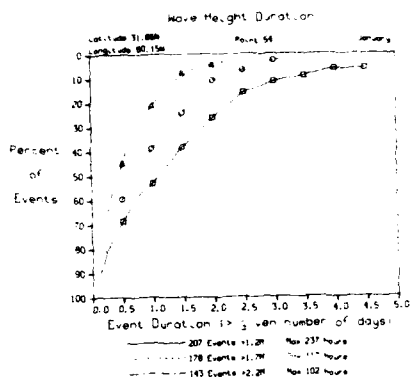


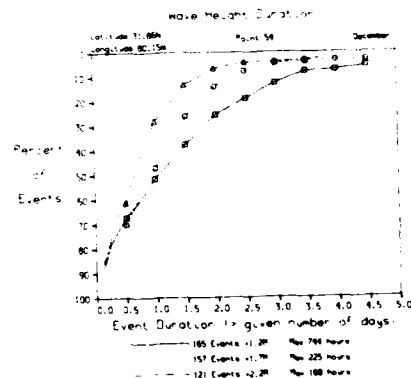
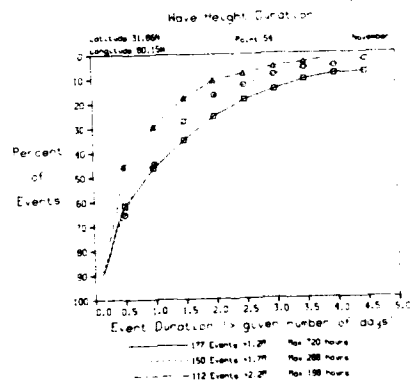
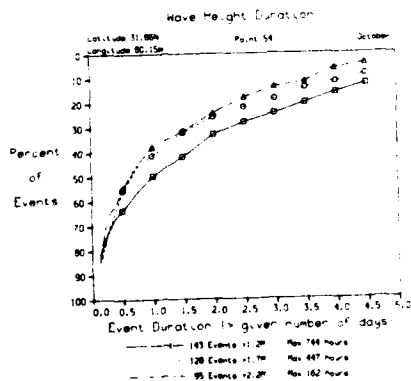
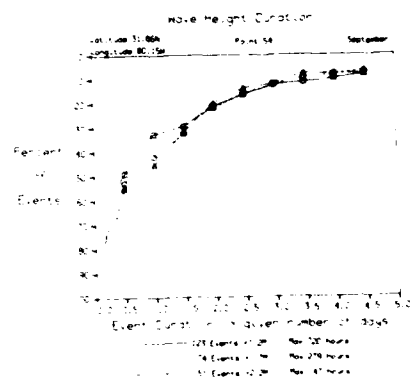
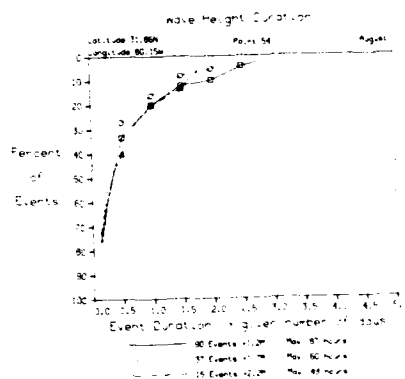
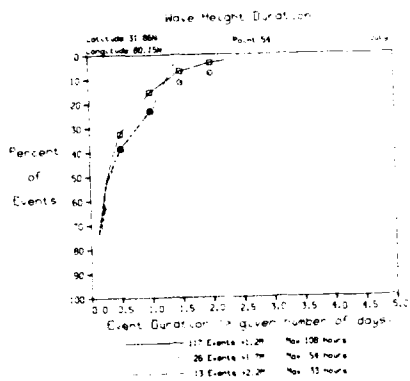


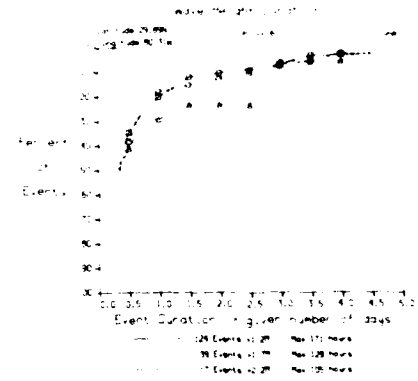
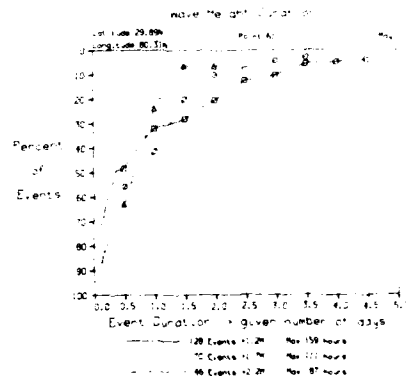
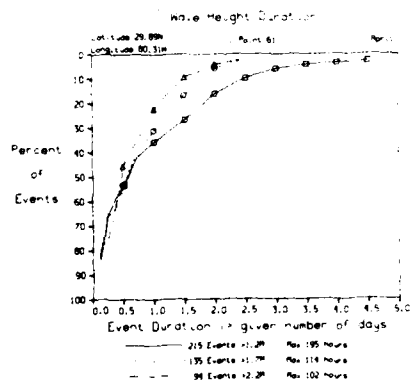
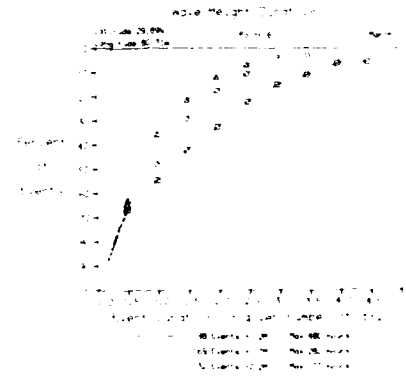
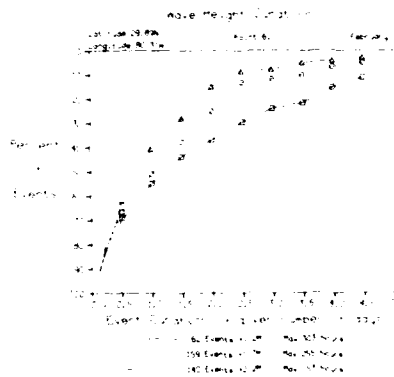
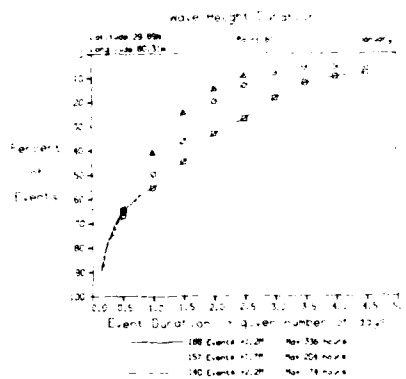


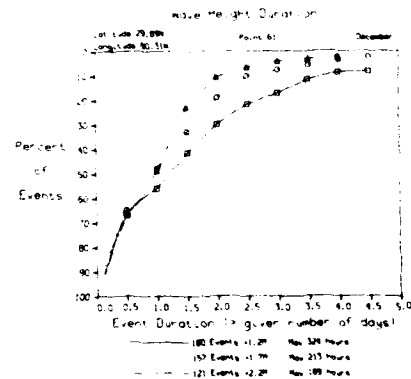
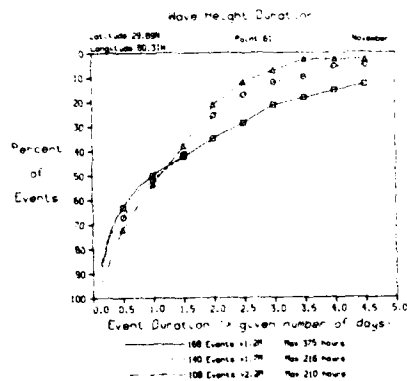
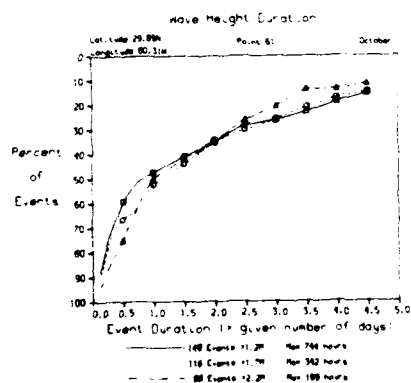
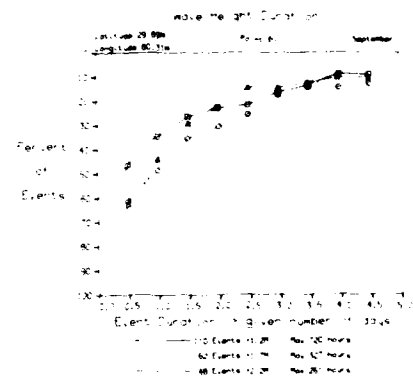
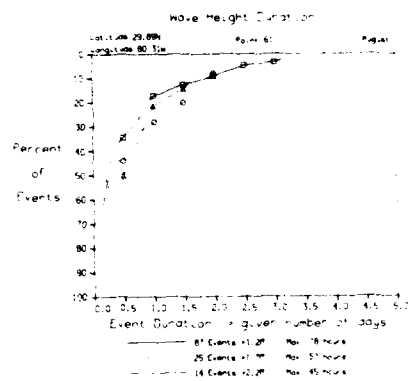
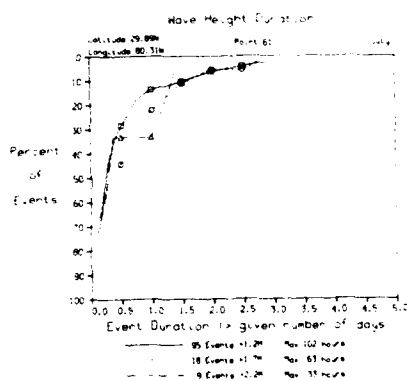


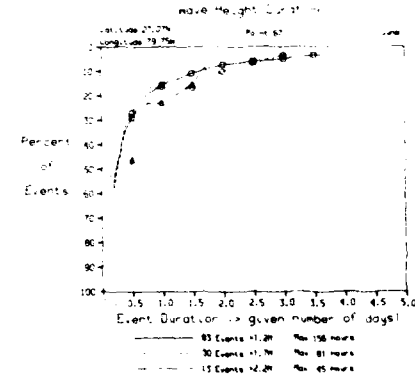
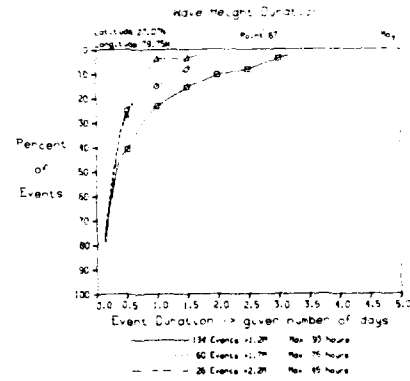
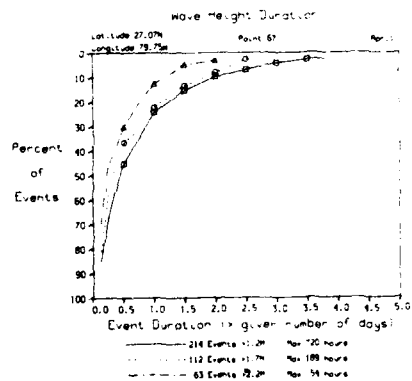
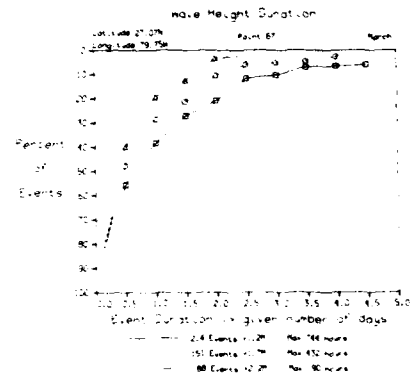
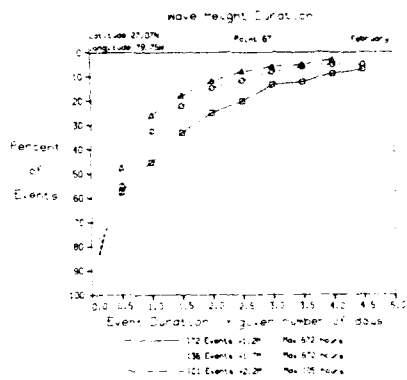
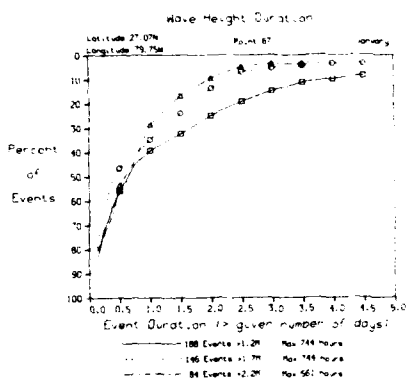


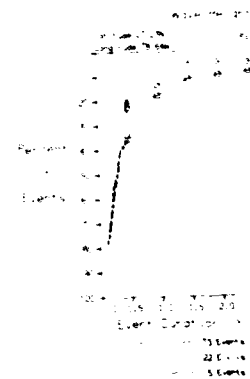
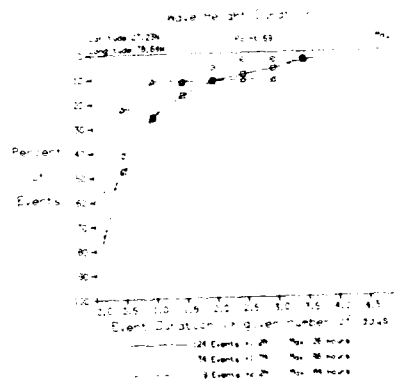
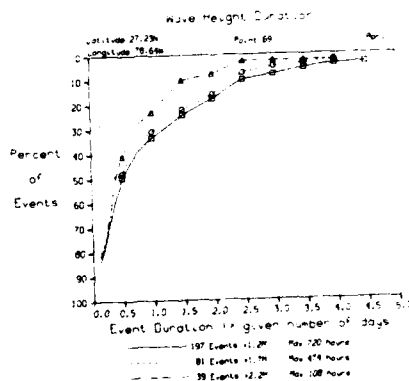
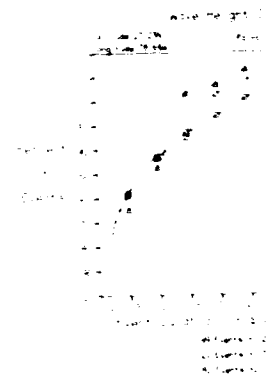
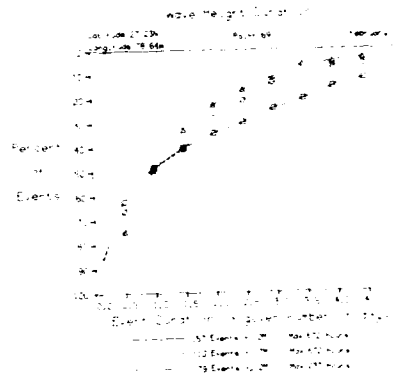
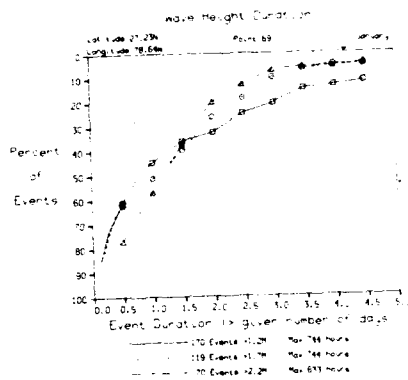


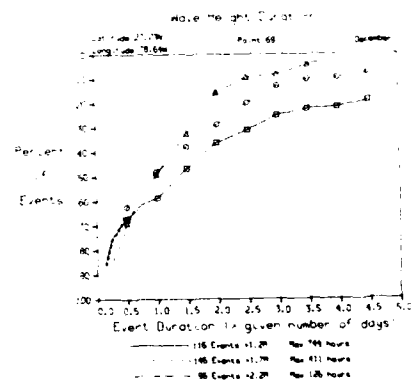
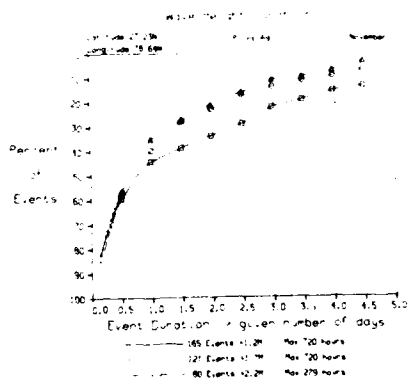
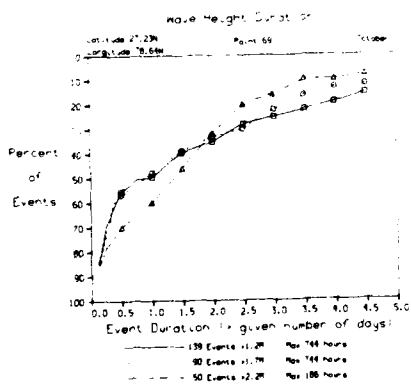
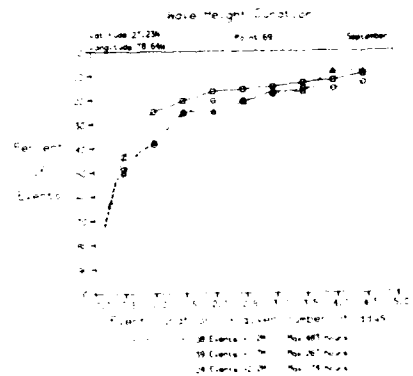
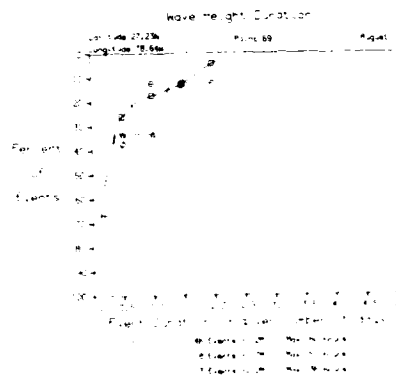
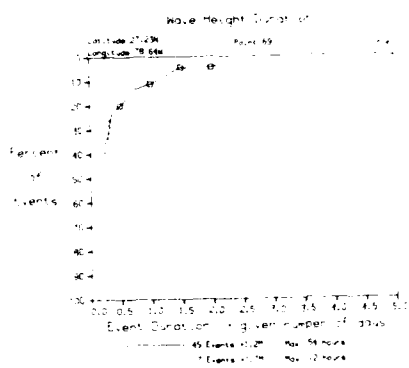


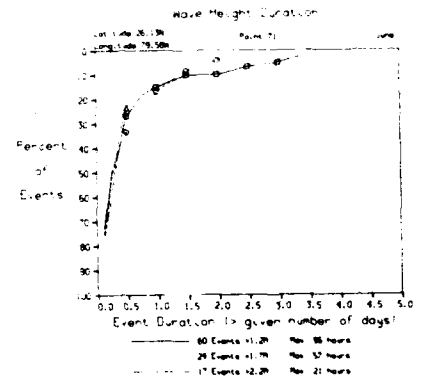
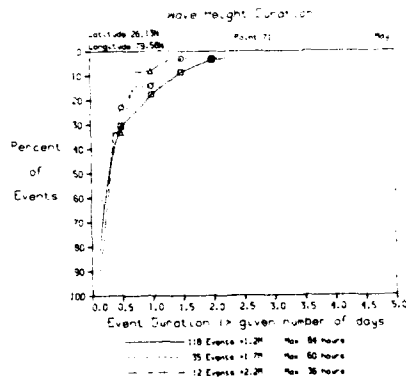
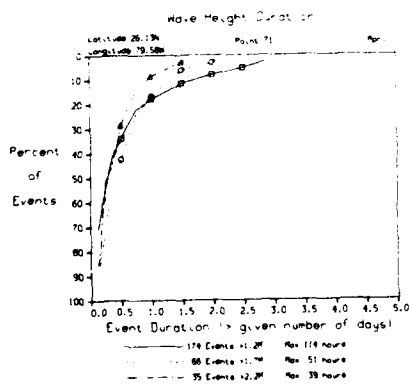
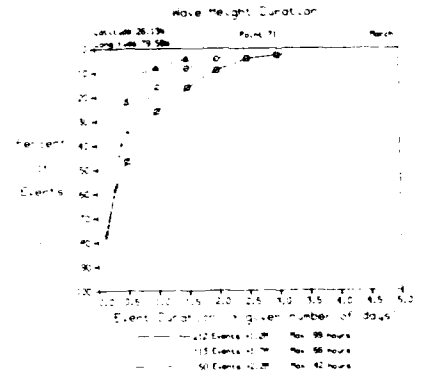
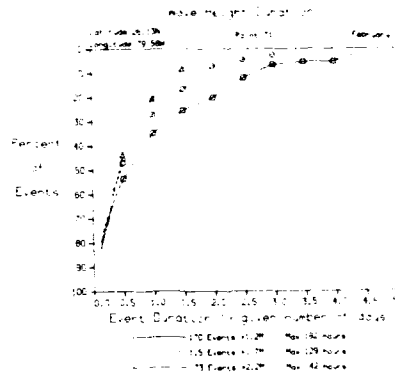
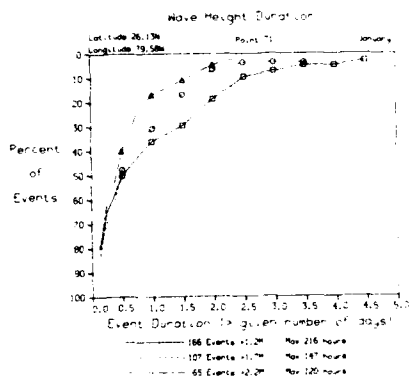


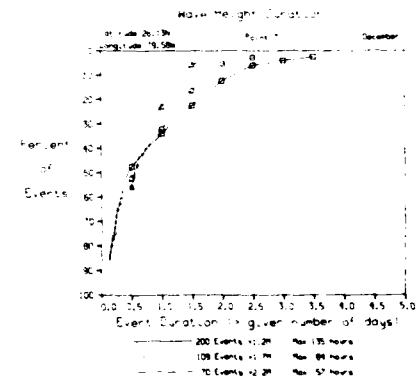
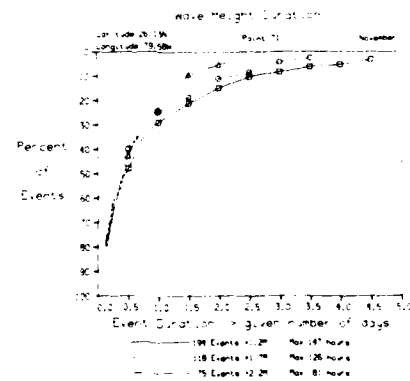
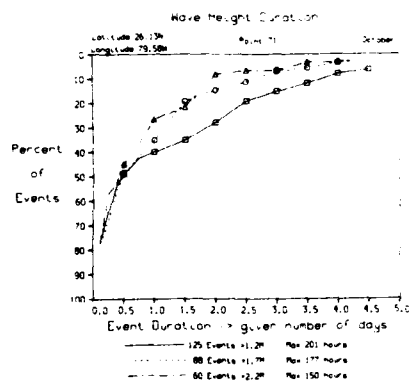
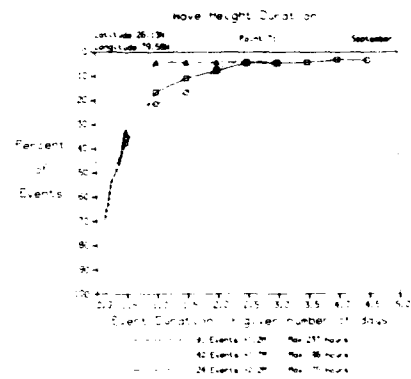
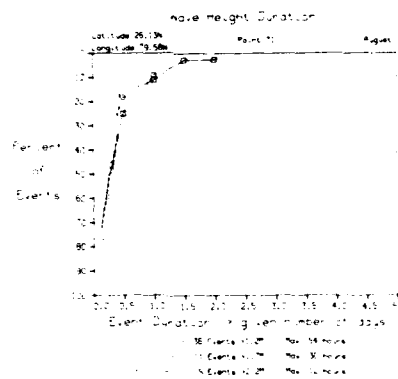
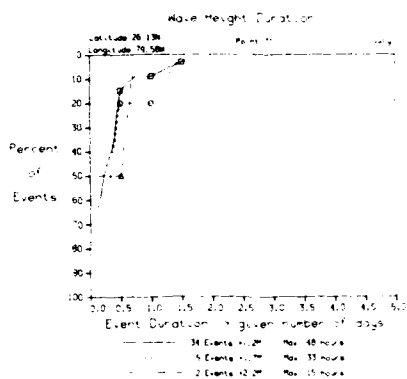


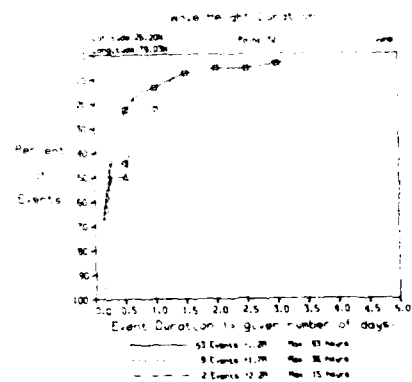
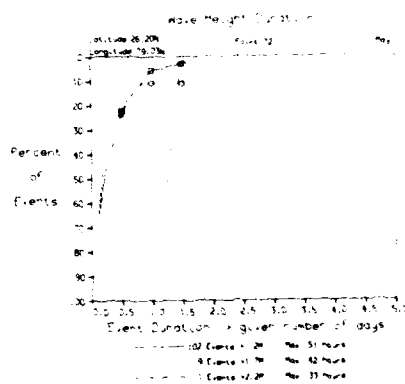
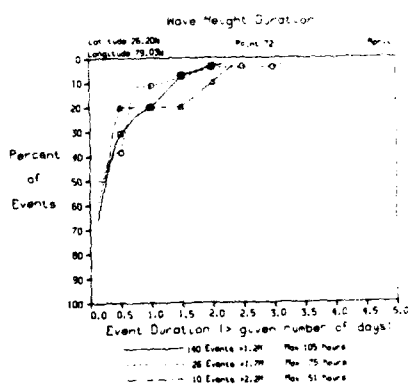
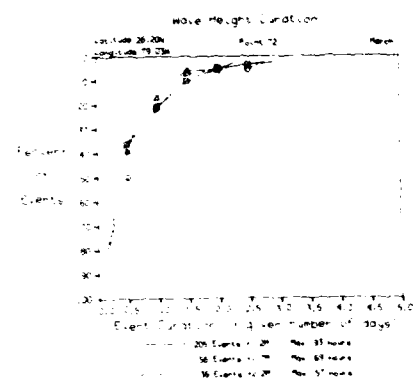
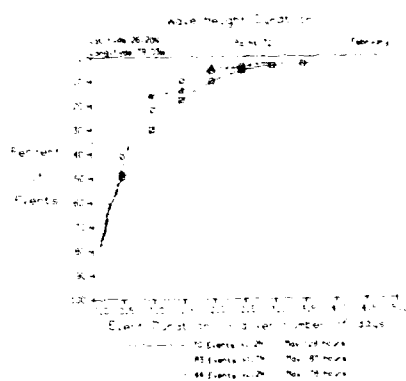
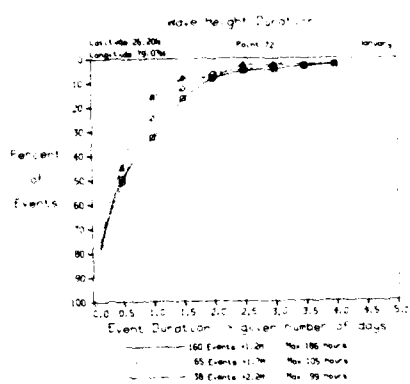


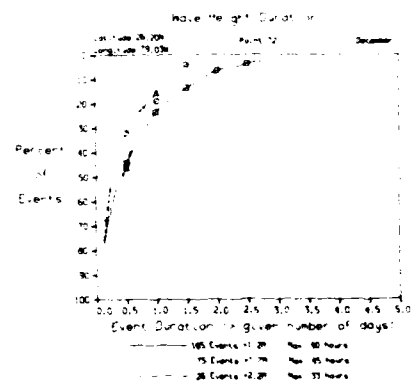
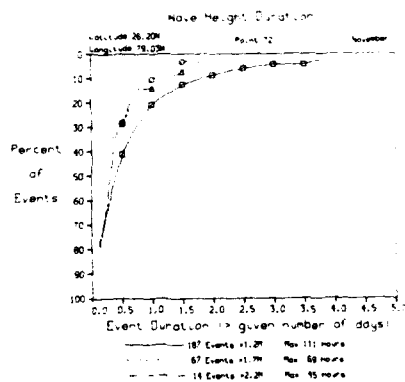
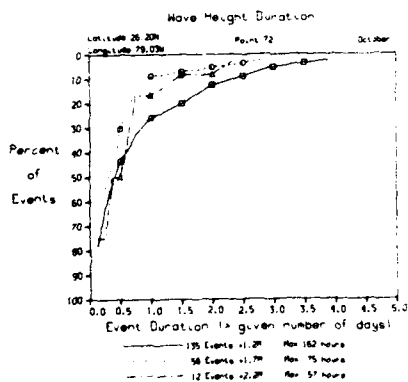
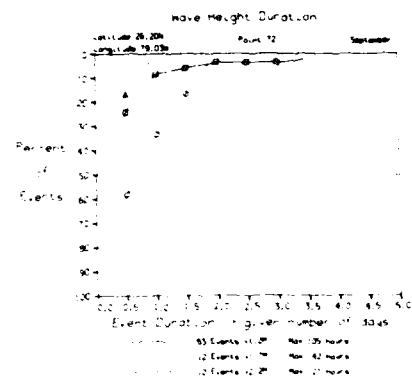
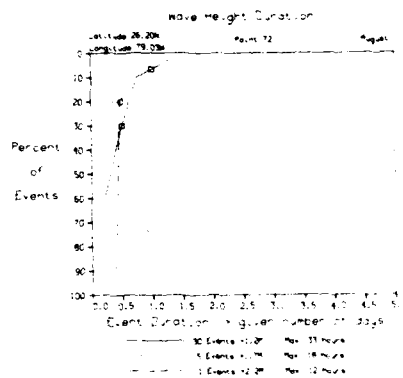
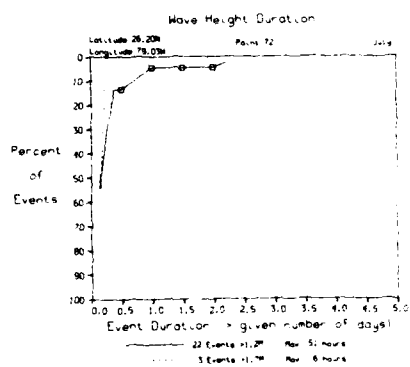


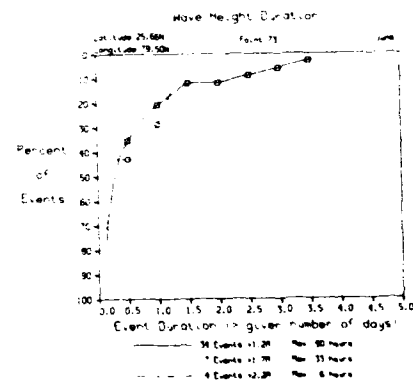
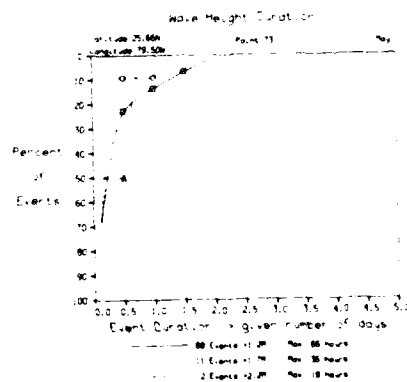
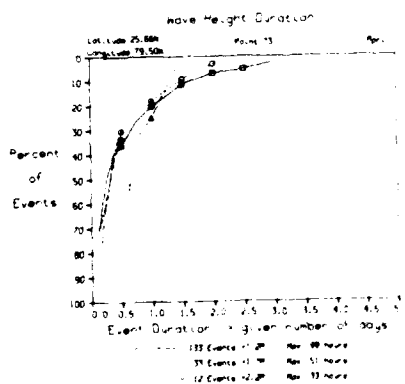
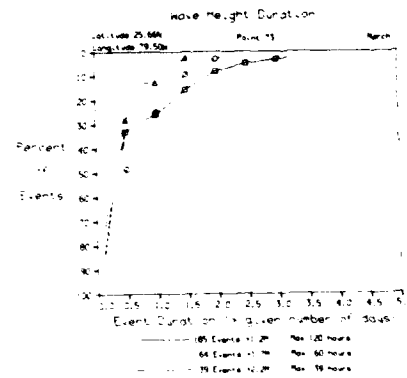
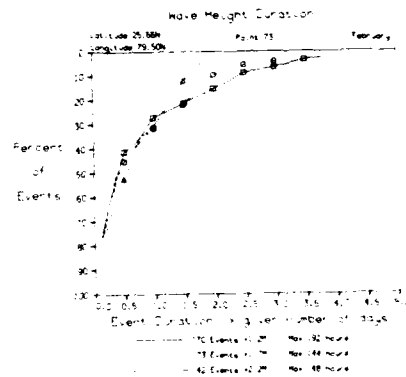
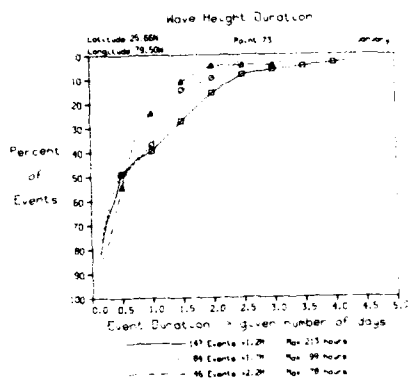


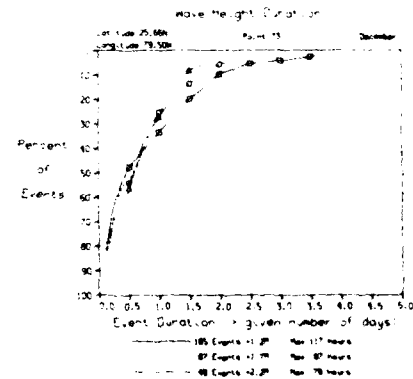
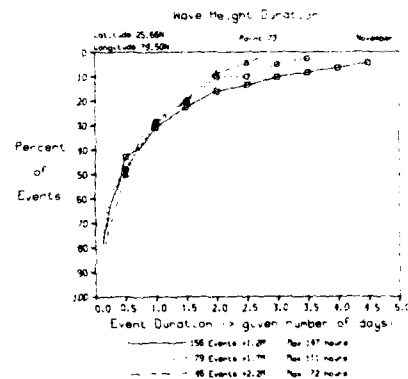
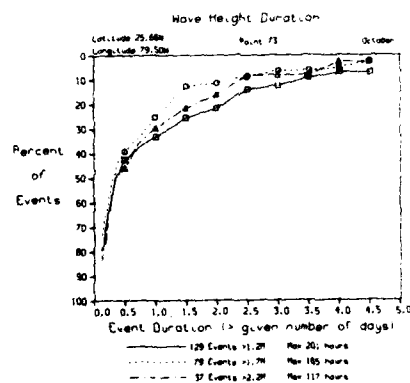
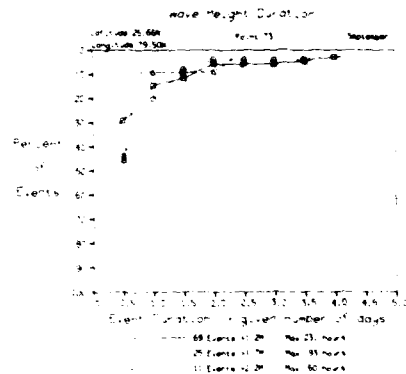
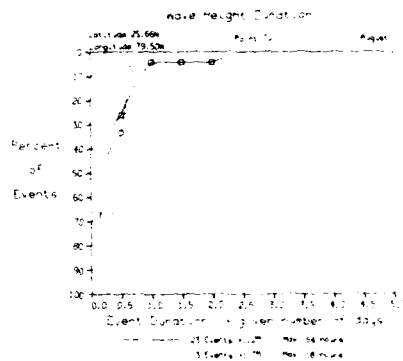
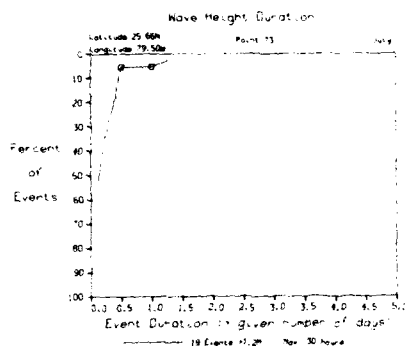


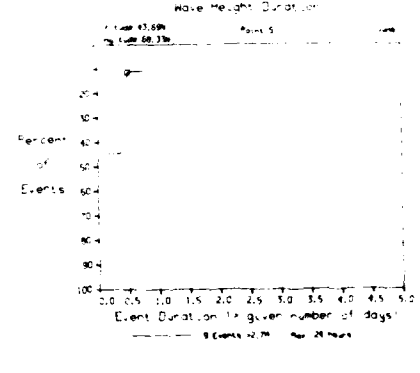
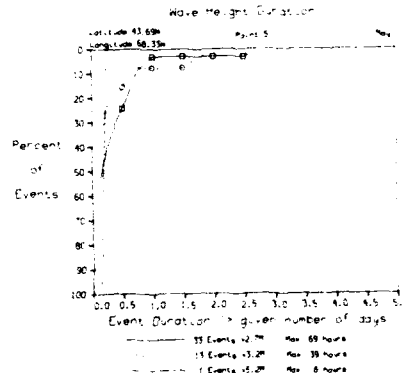
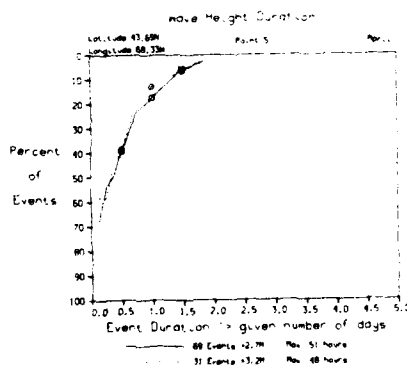
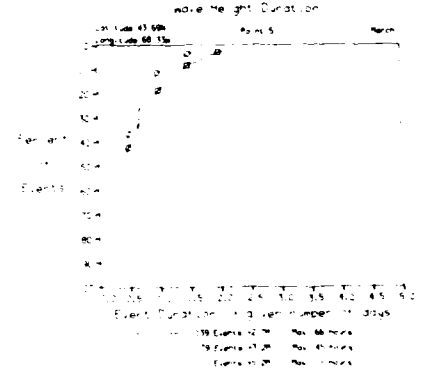
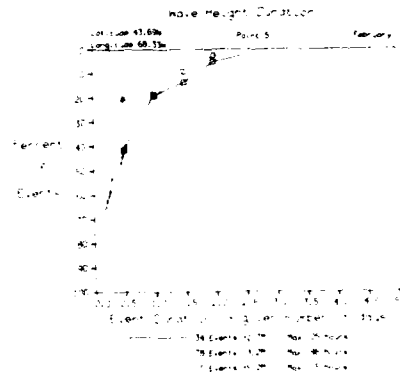
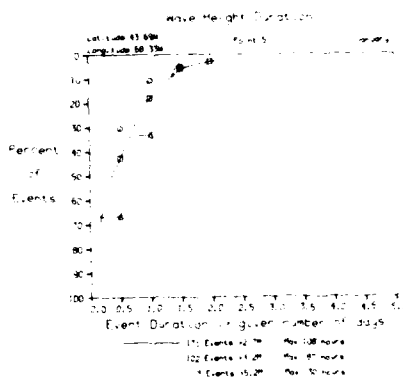


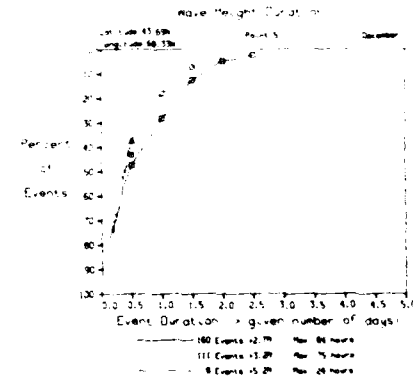
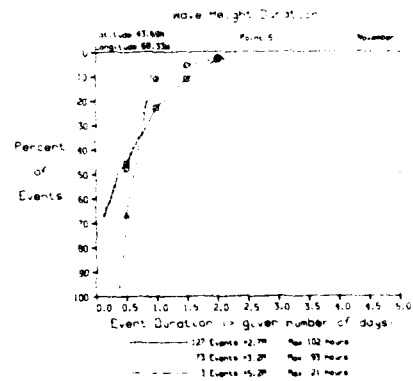
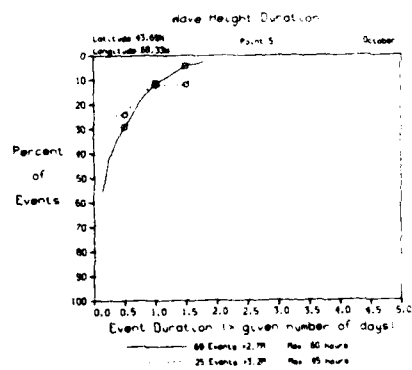
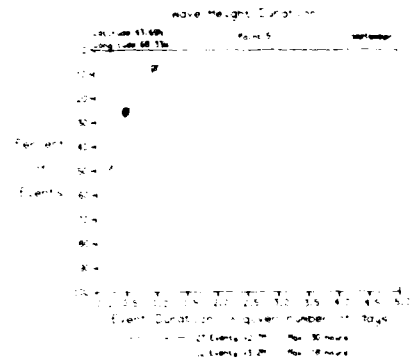
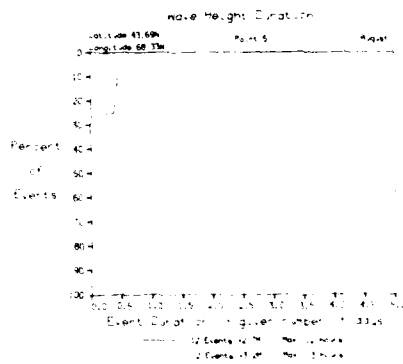
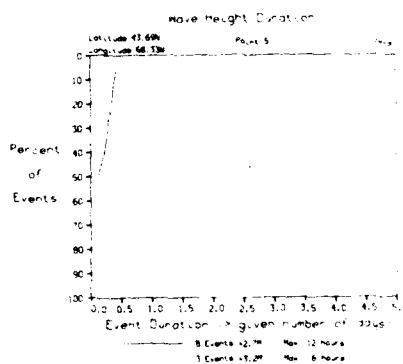


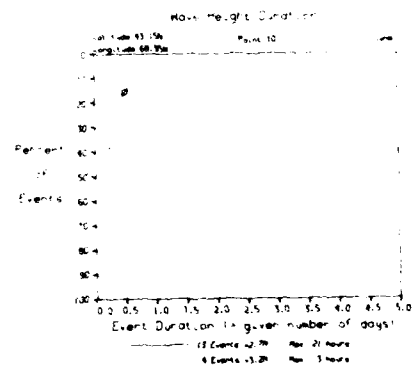
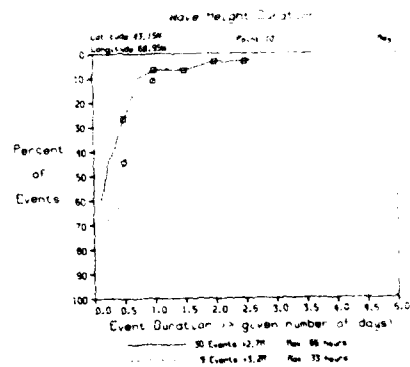
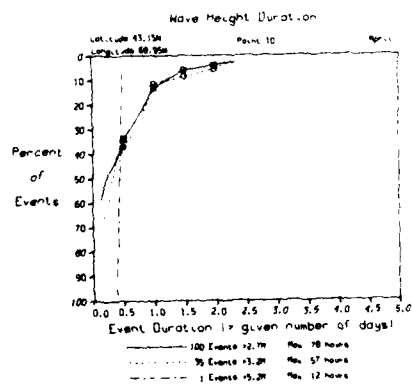
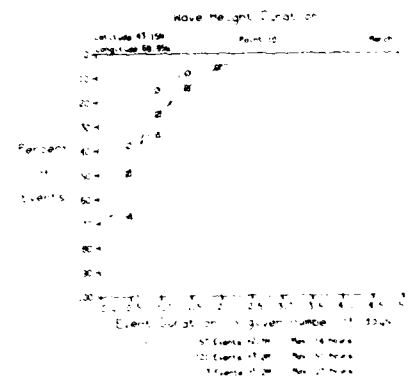
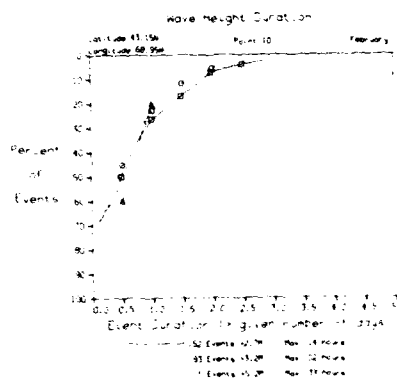
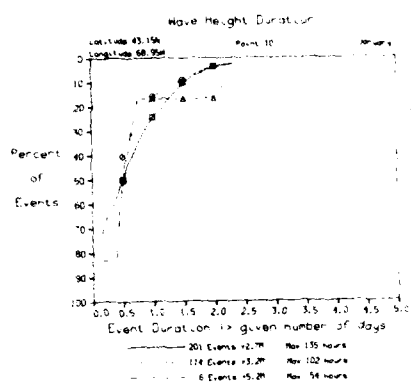


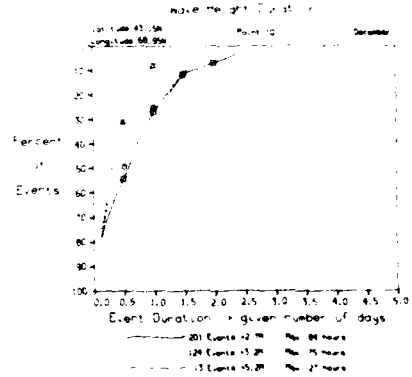
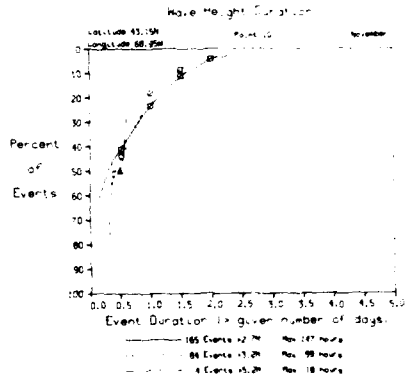
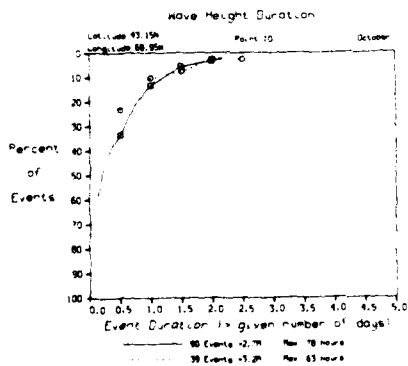
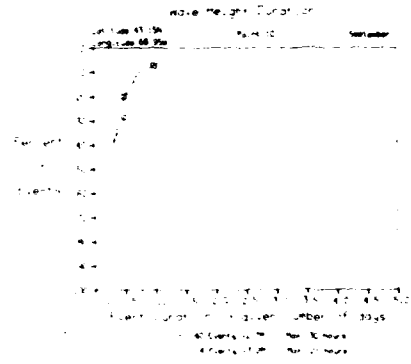
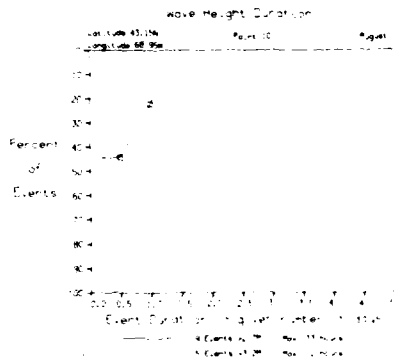
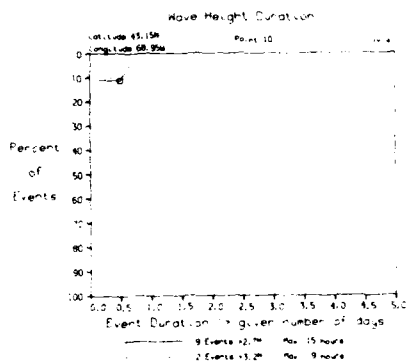


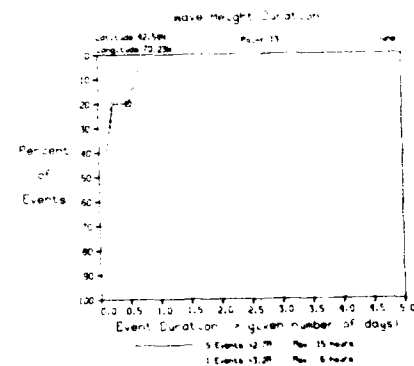
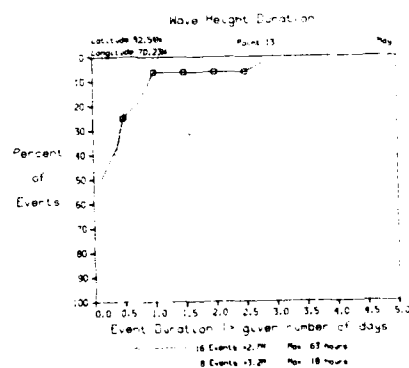
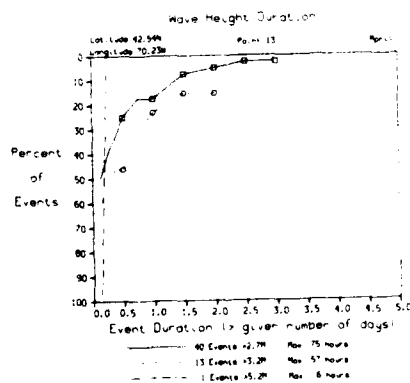
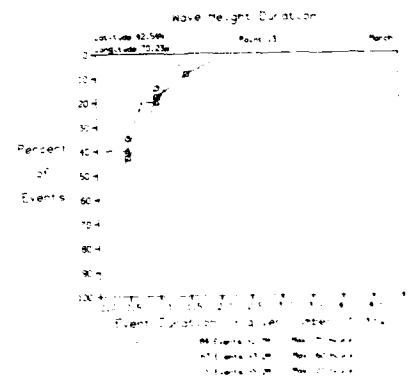
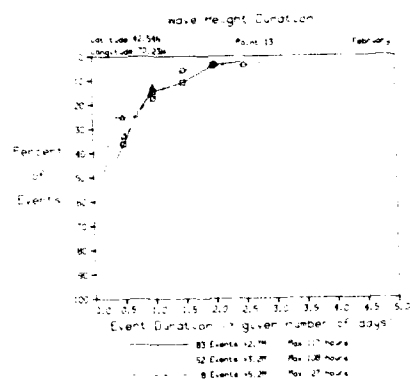
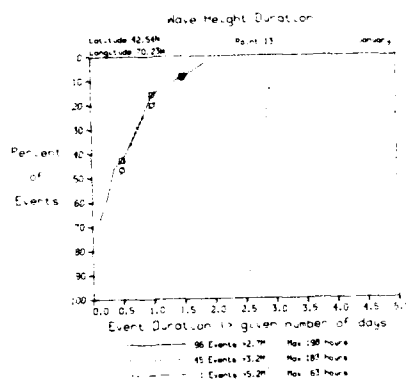


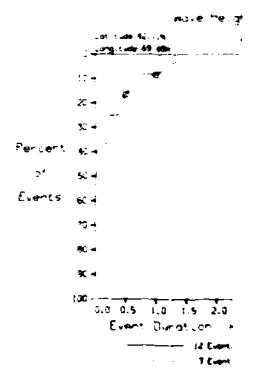
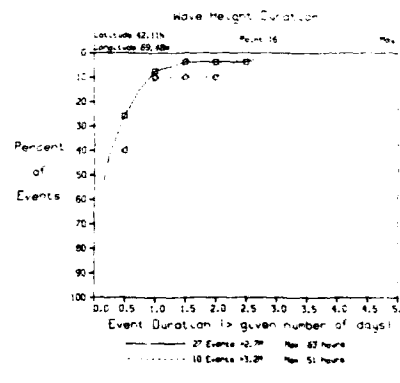
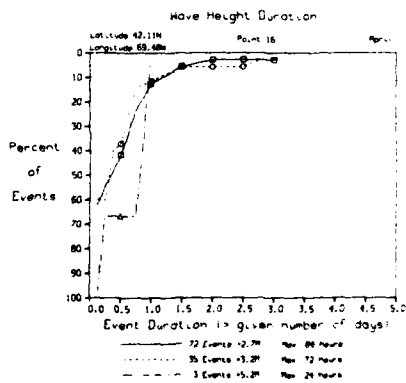
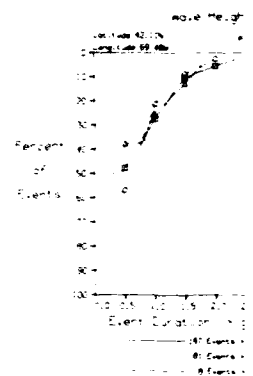
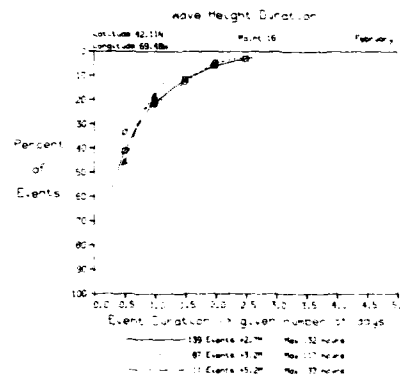
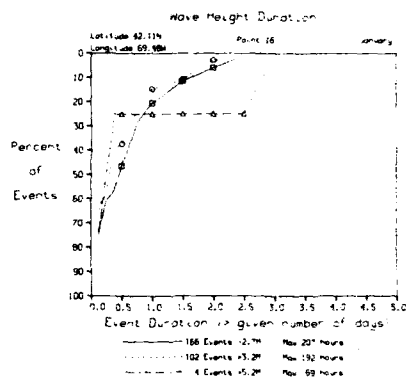


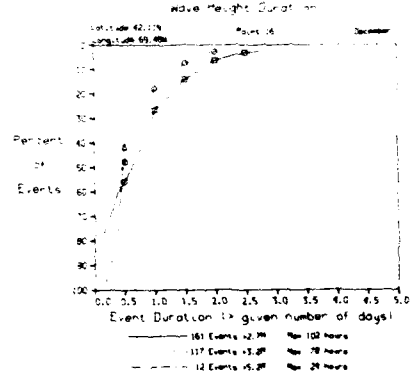
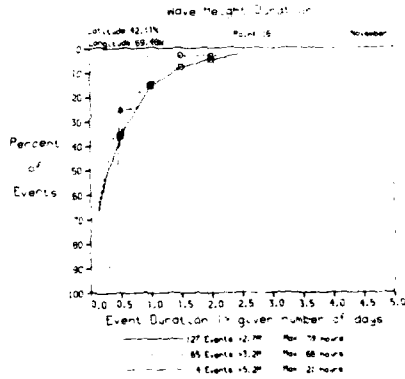
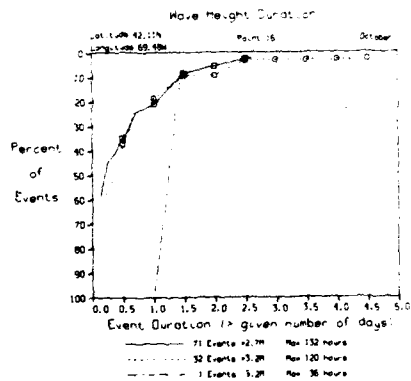
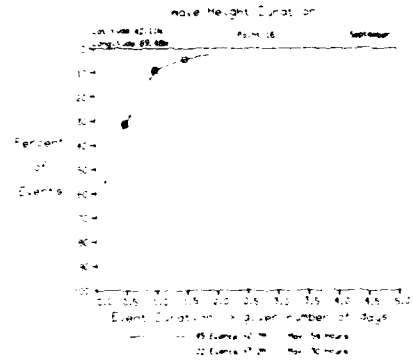
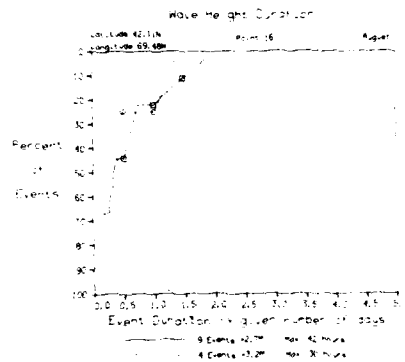
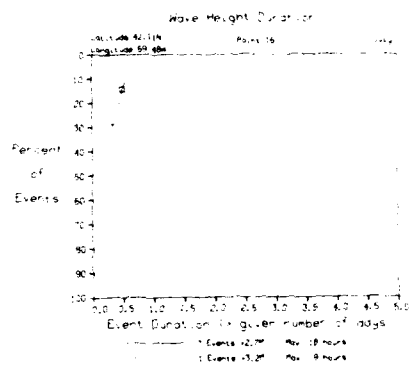


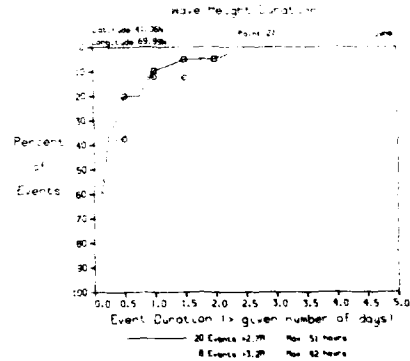
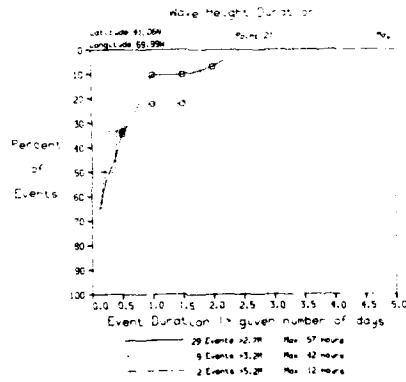
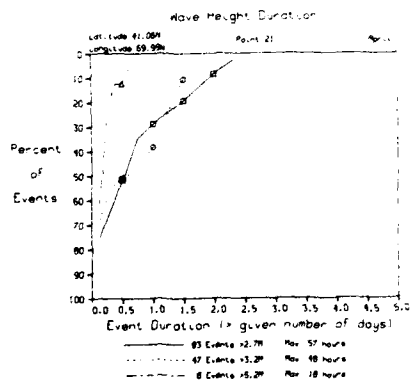
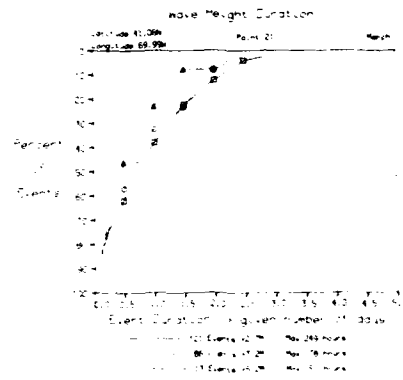
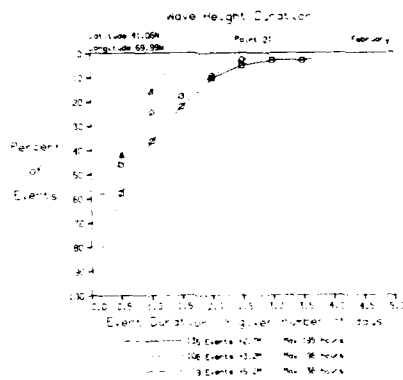
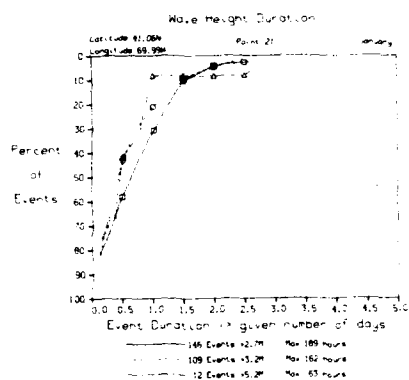


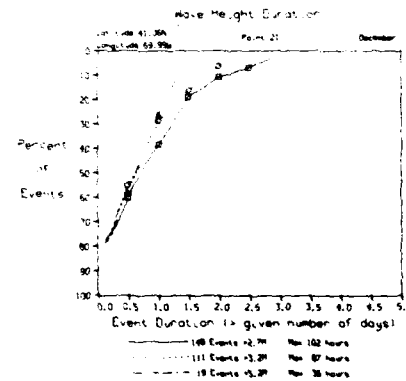
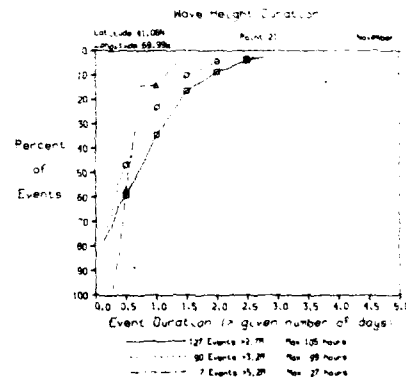
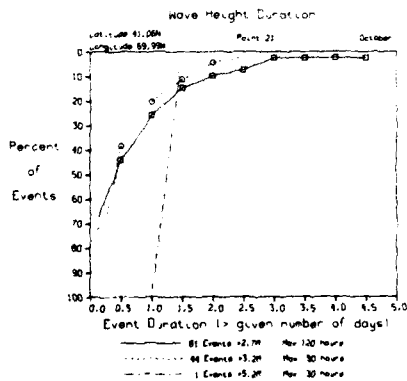
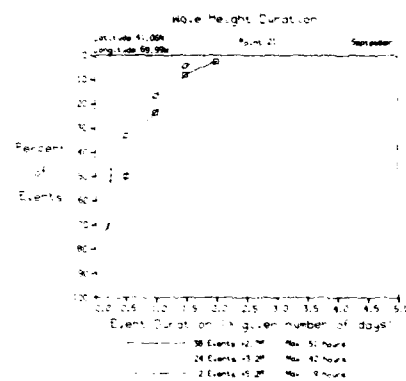
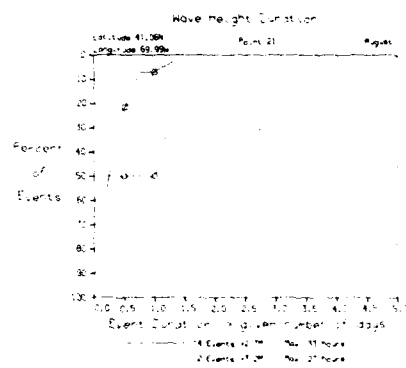
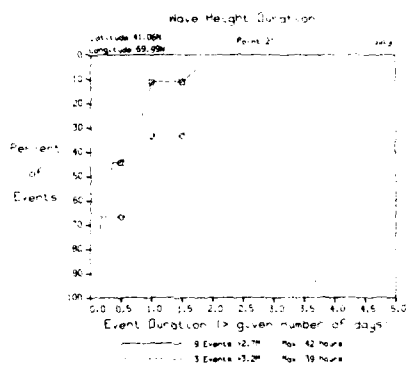


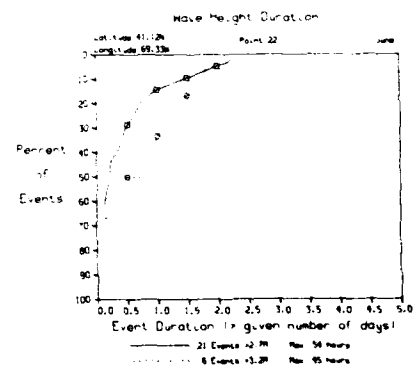
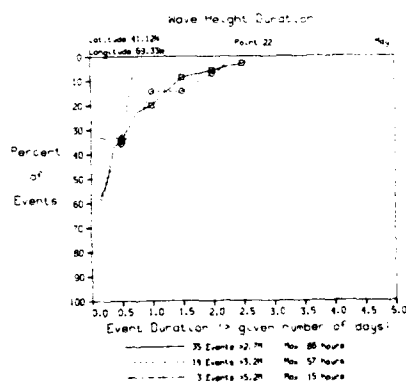
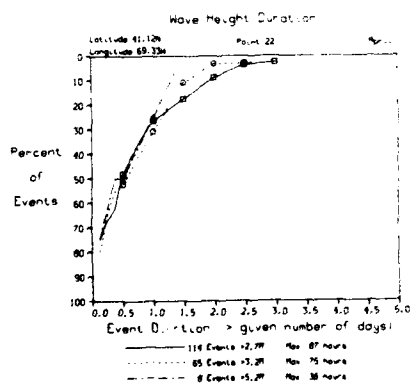
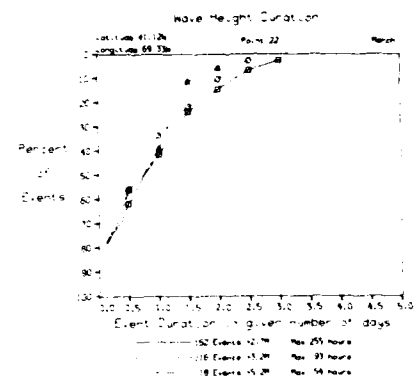
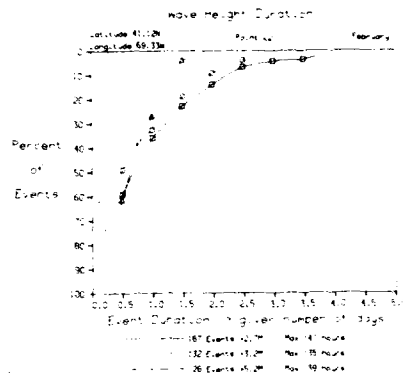
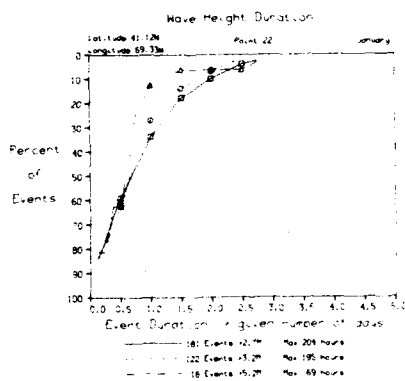


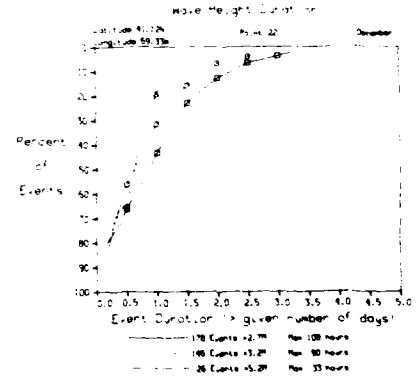
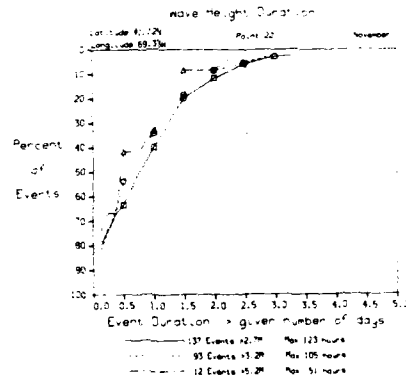
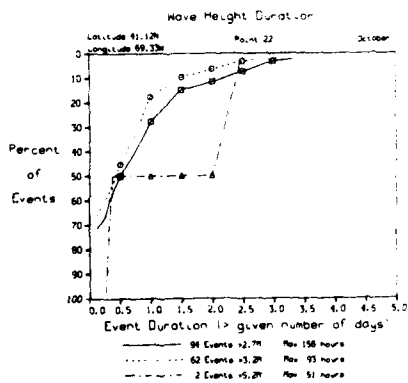
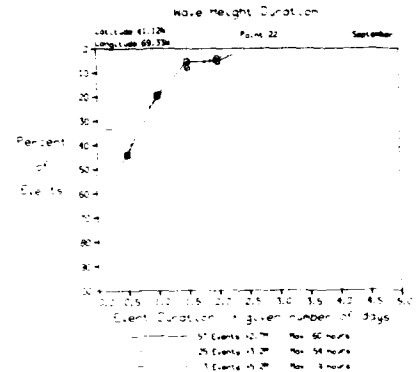
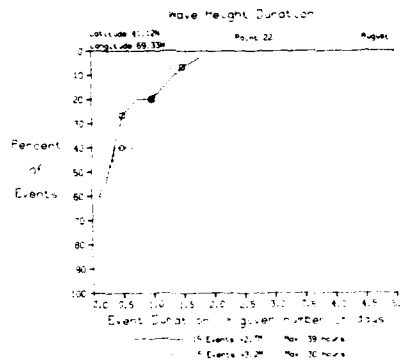
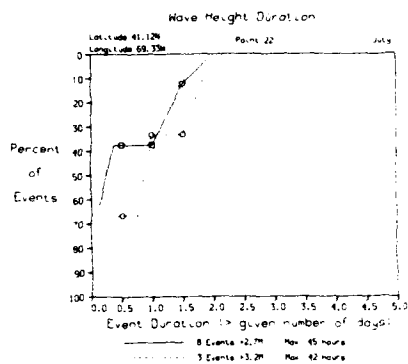


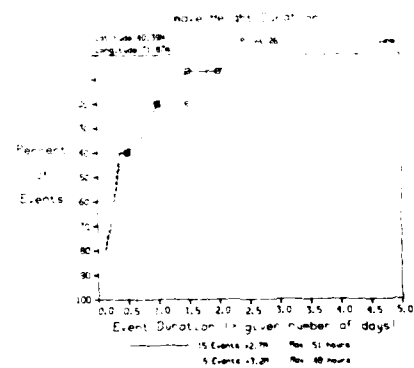
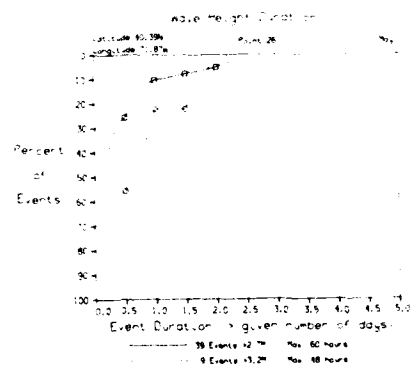
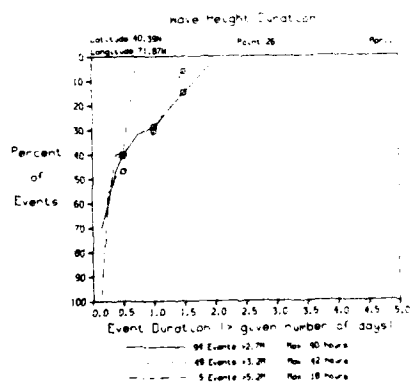
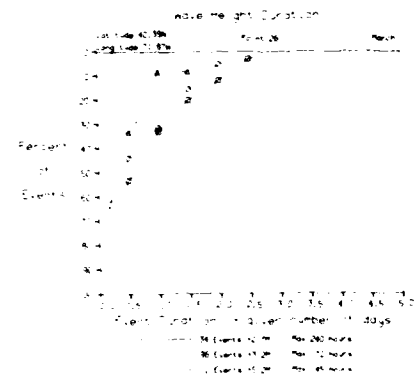
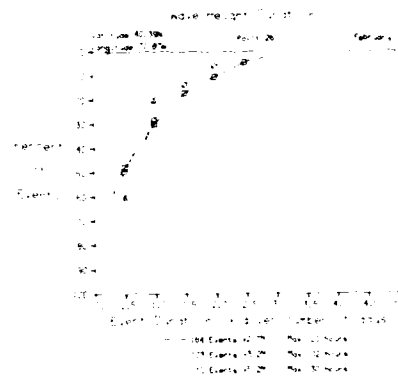
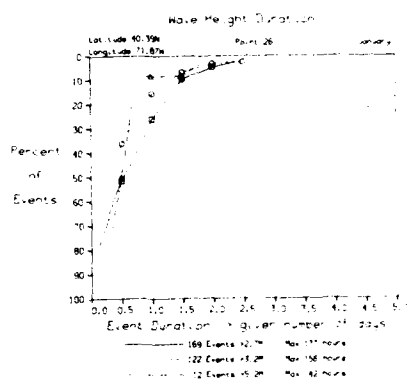


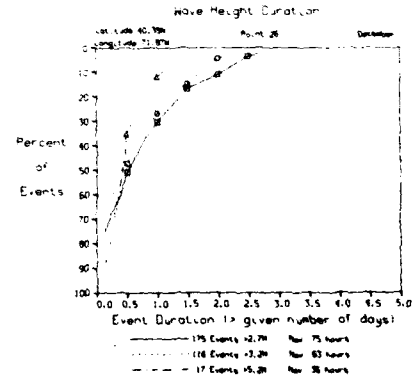
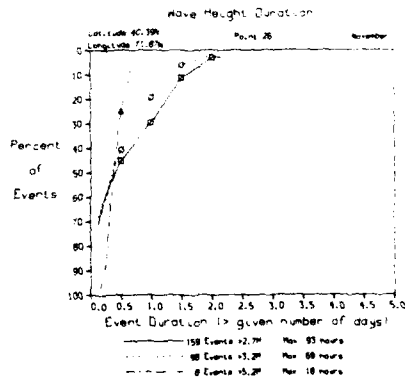
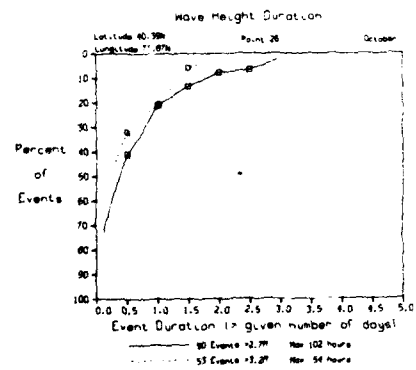
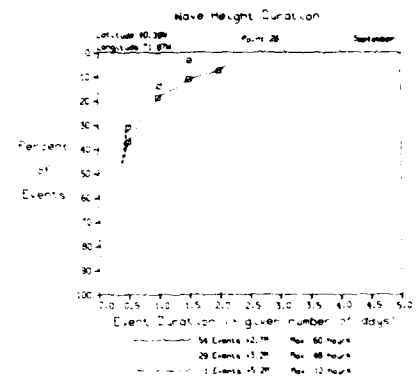
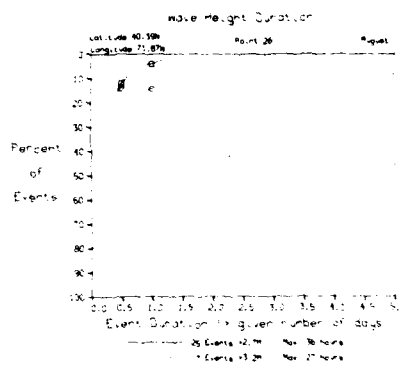
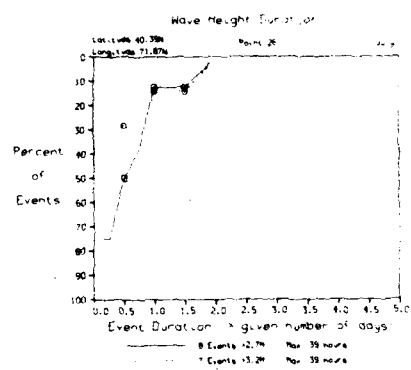


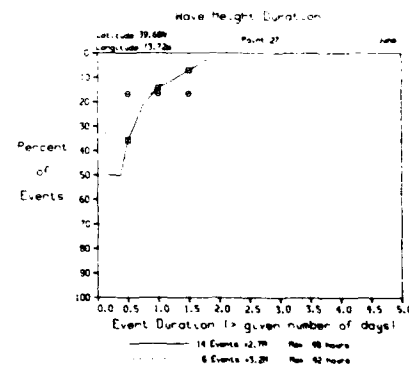
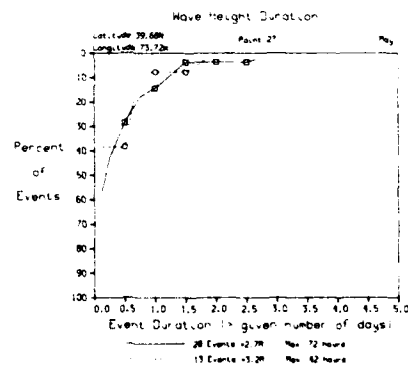
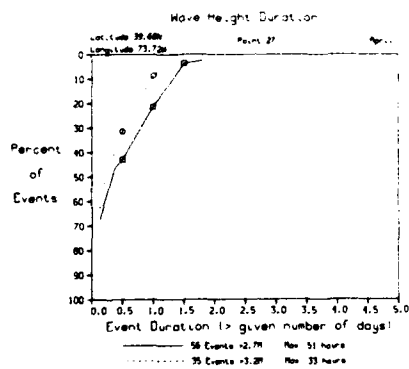
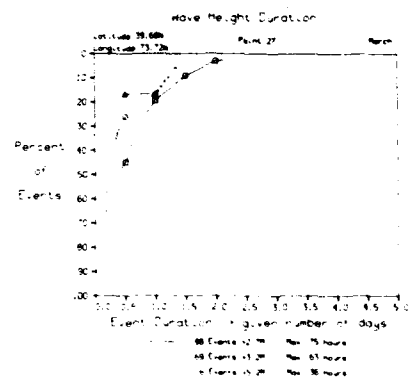
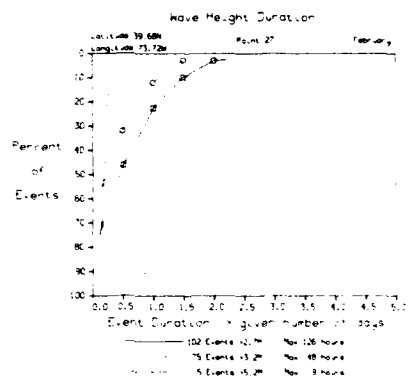
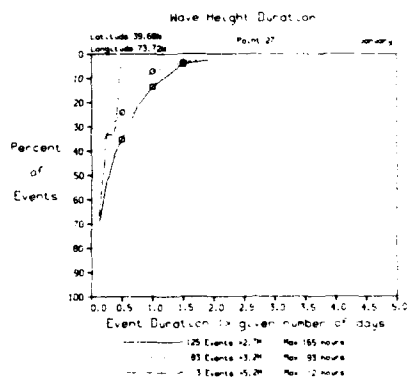


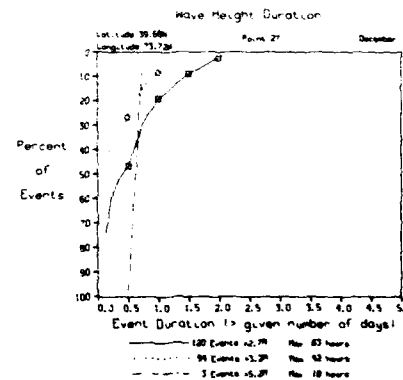
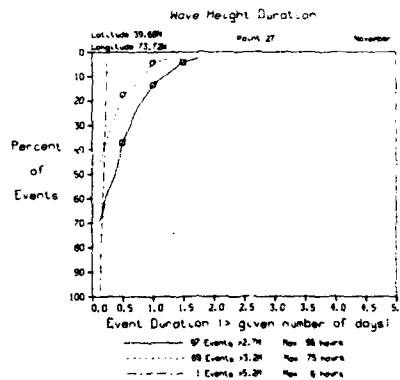
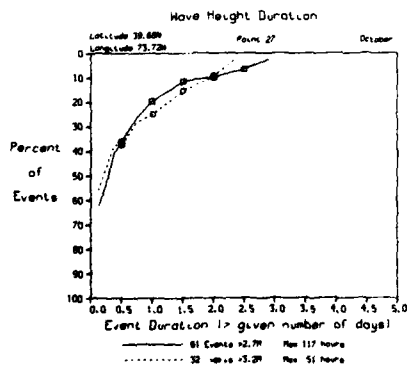
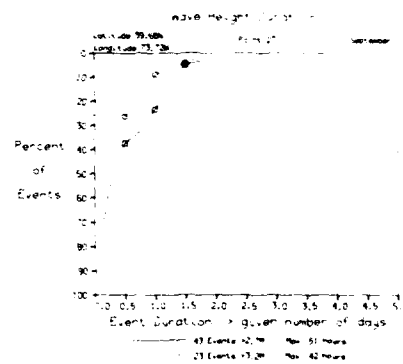
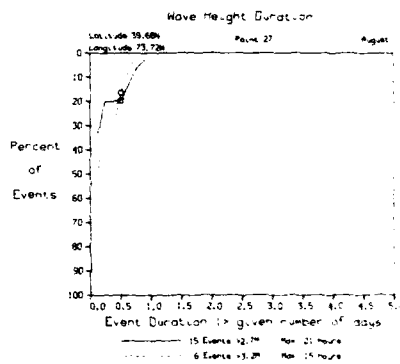
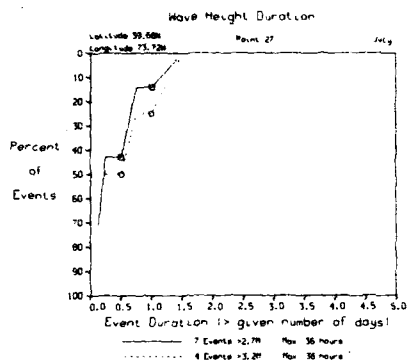


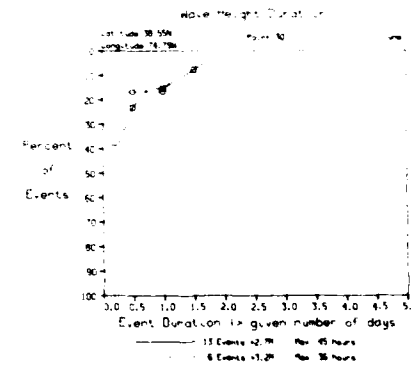
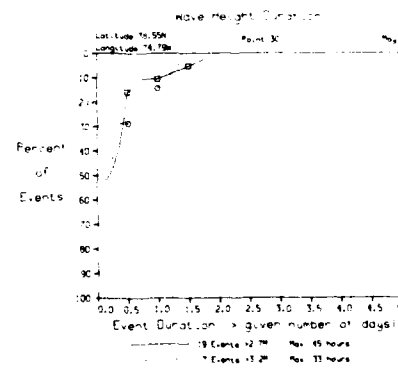
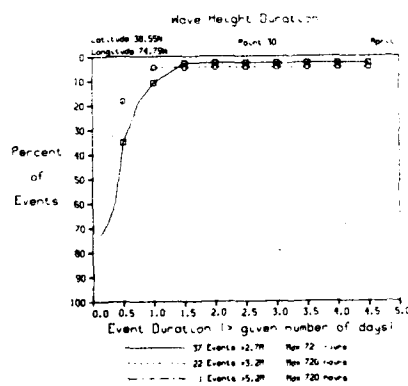
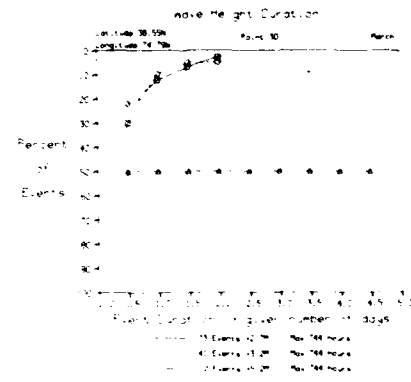
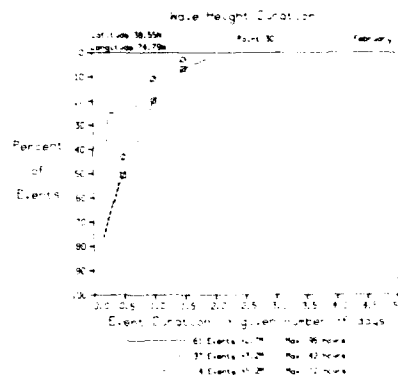
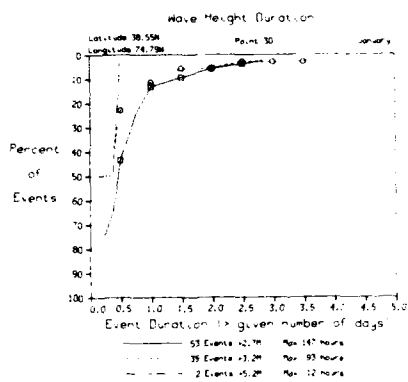


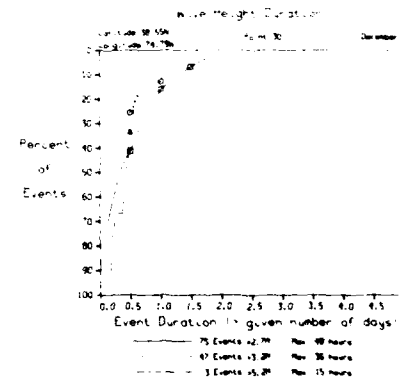
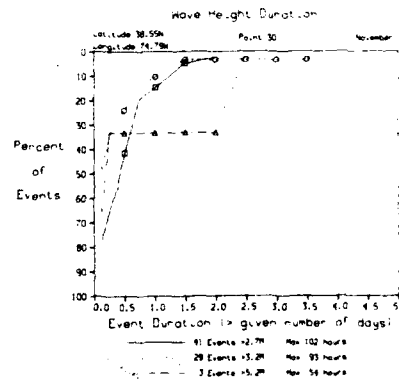
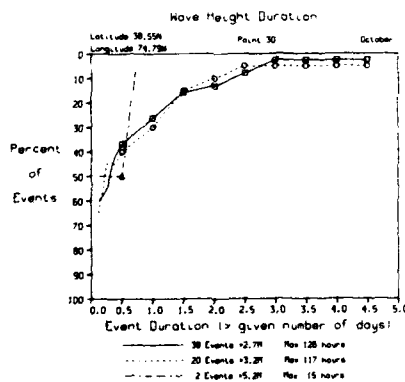
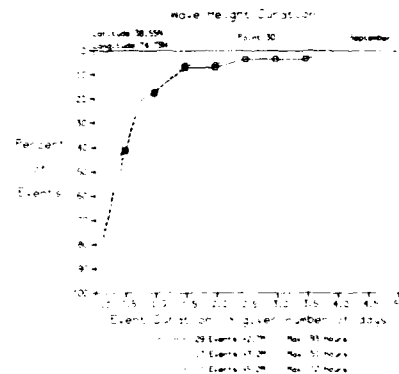
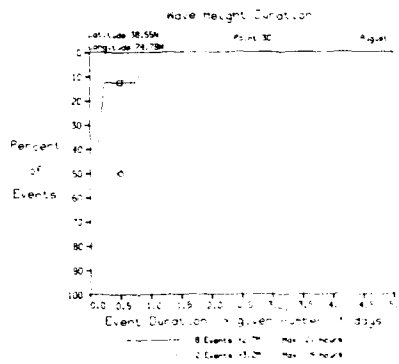
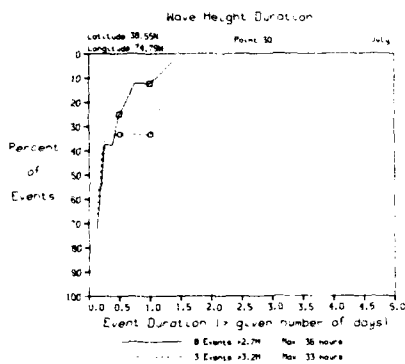


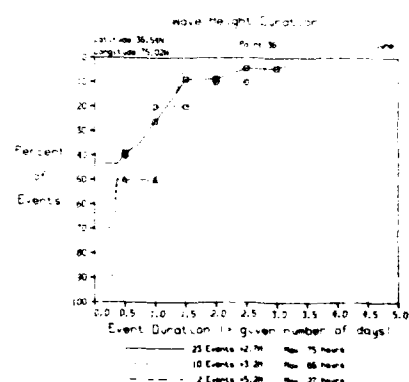
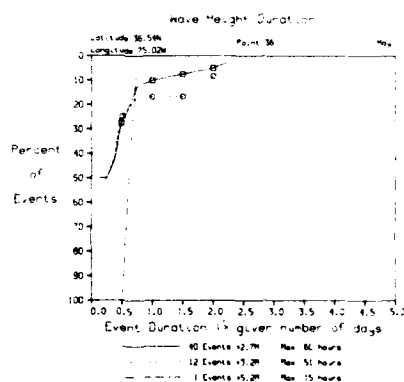
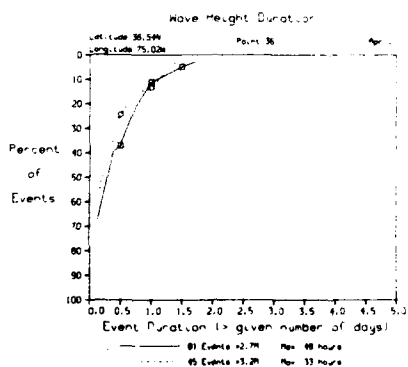
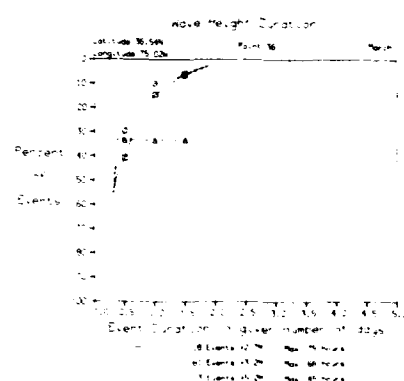
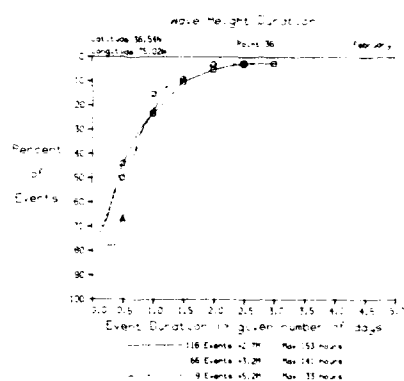
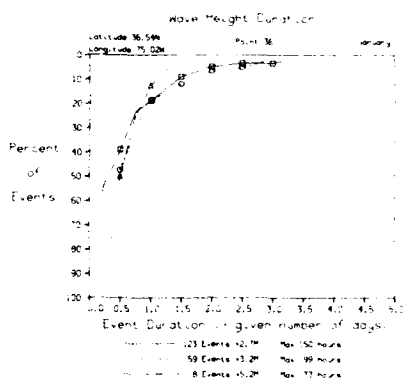












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WIND AND WAVE SUMMARIES FOR SELECTED US COAST GUARD
OPERATING AREAS(U) NATIONAL CLIMATIC DATA CENTER
ASHEVILLE NC D PASKAUSKY ET AL. APR 83 USCG-D-11-83
MIPR-270099-2-0612R

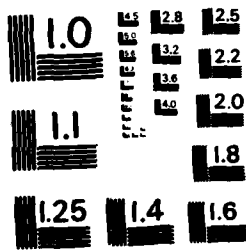
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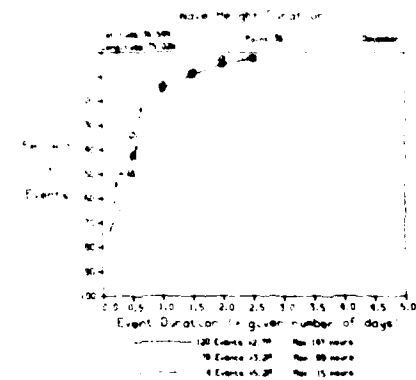
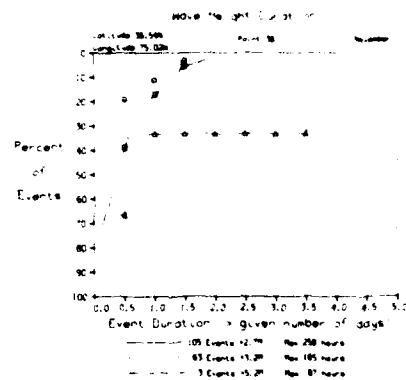
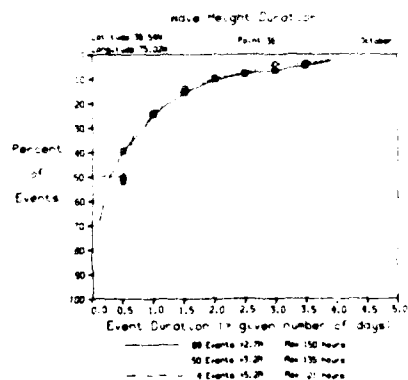
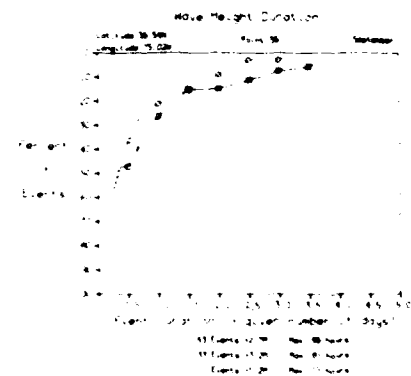
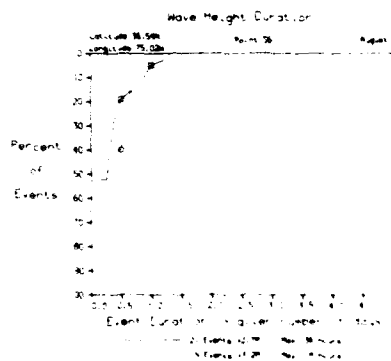
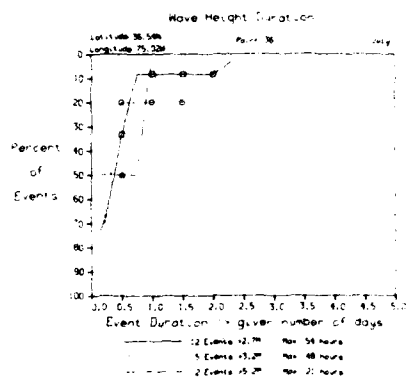
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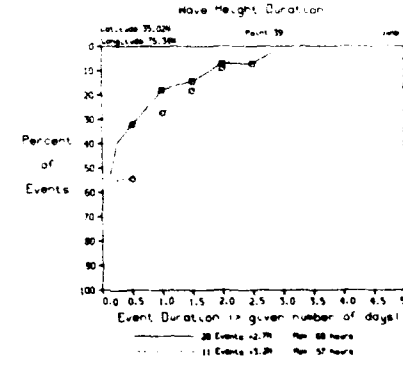
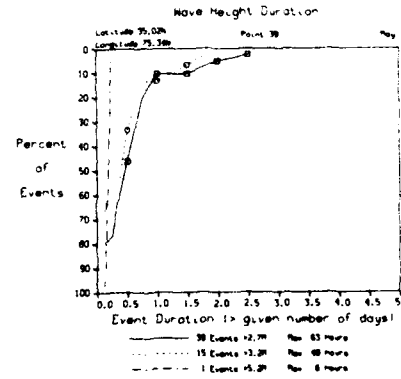
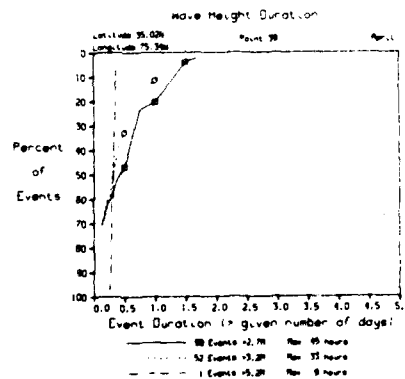
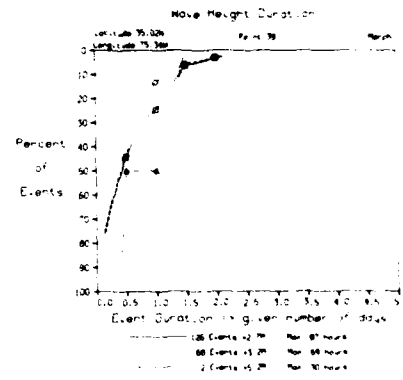
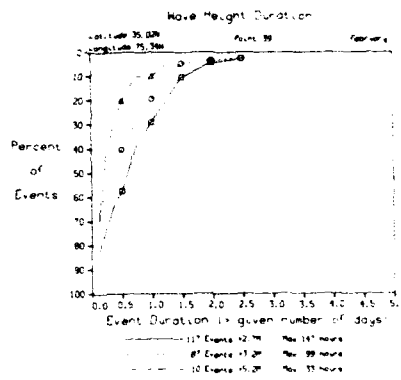
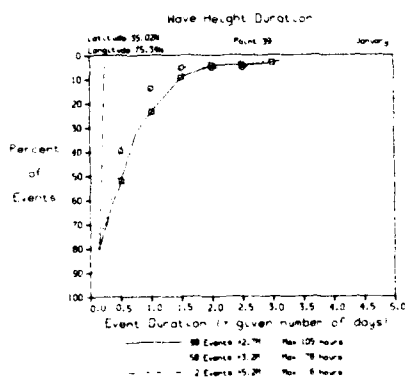
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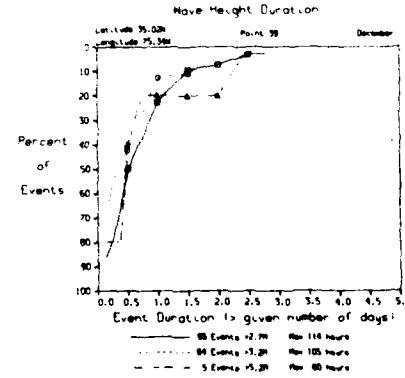
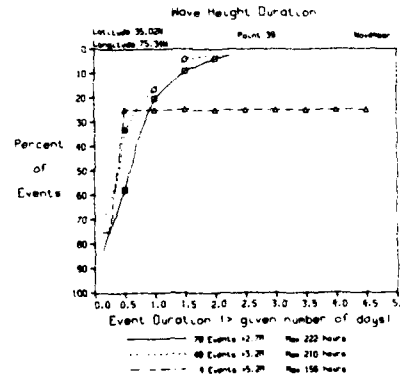
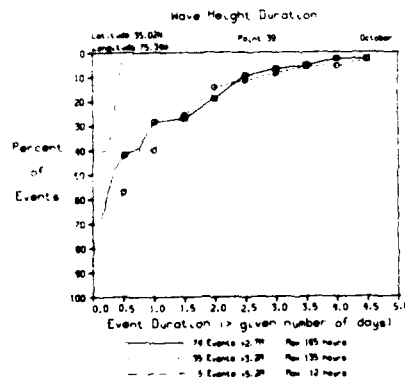
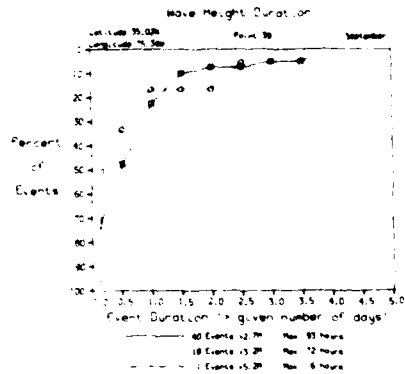
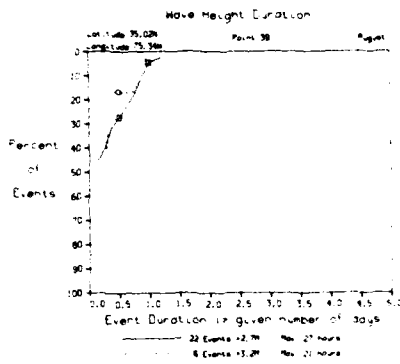
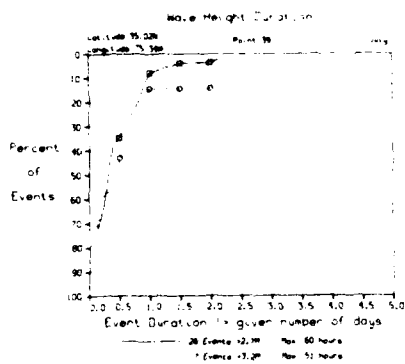
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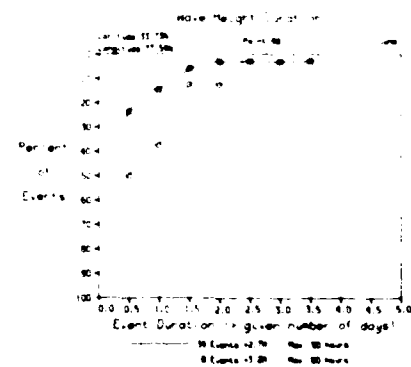
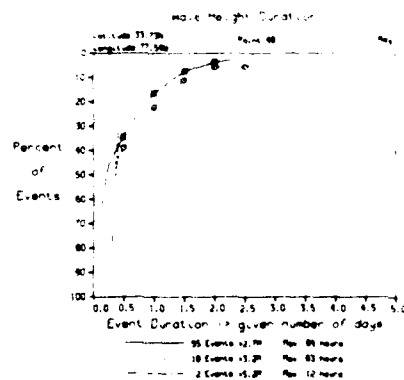
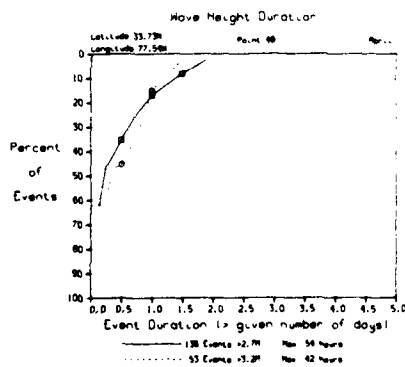
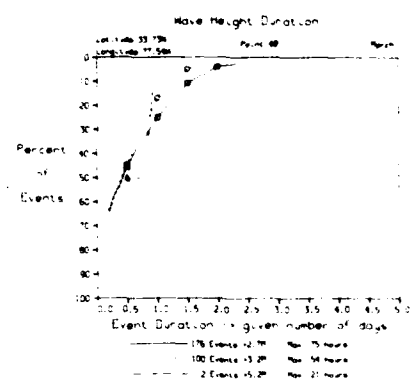
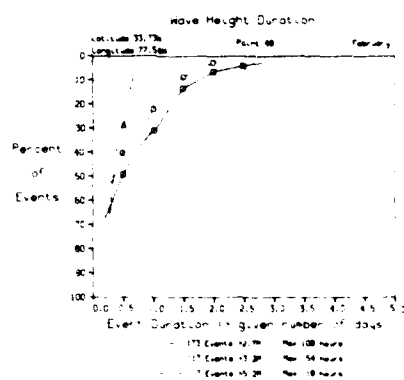
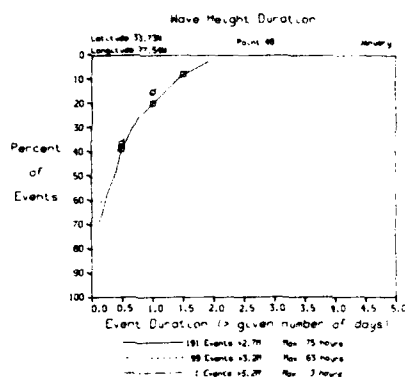


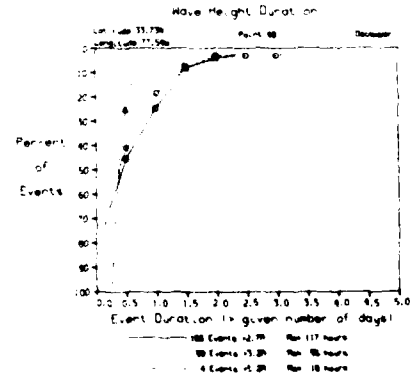
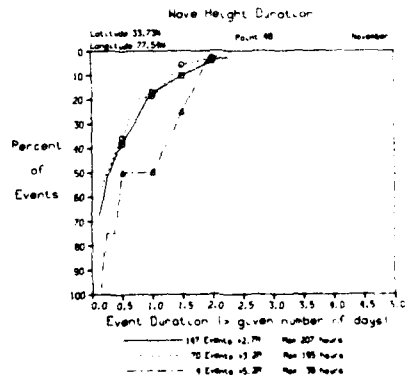
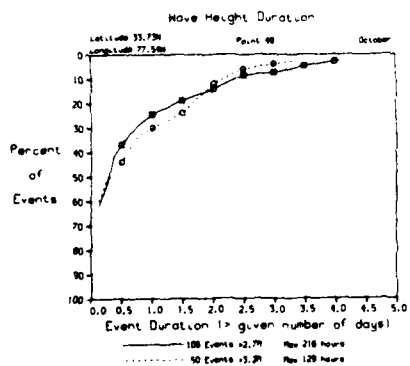
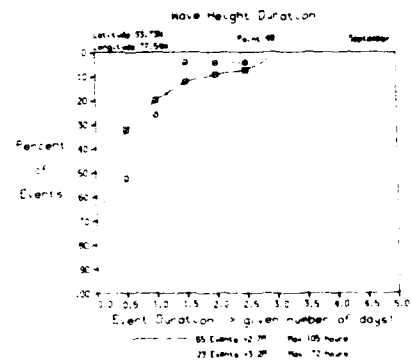
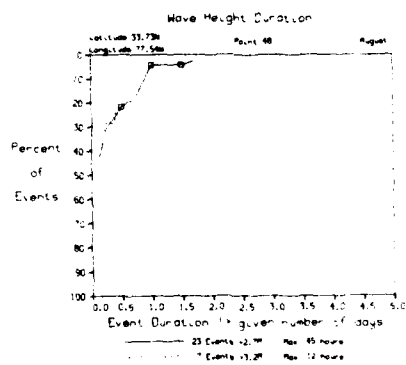
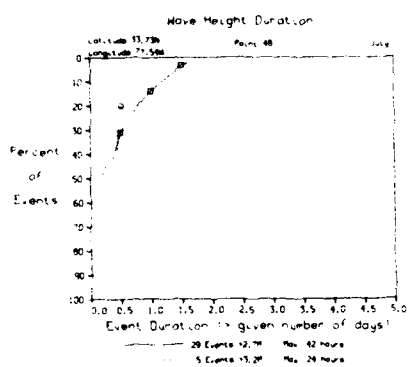
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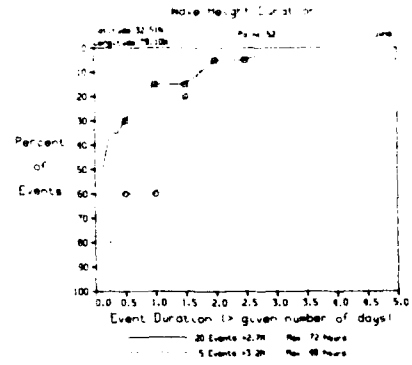
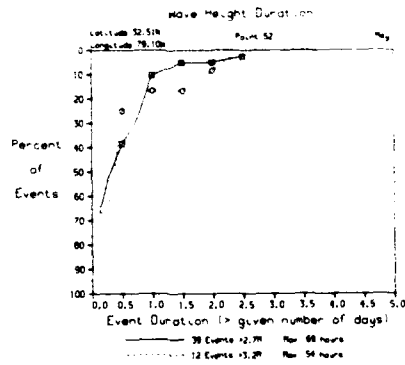
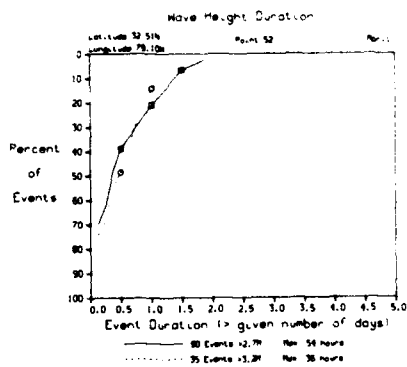
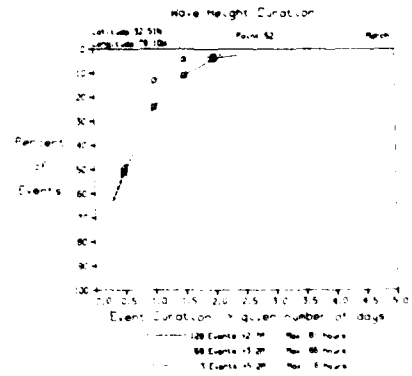
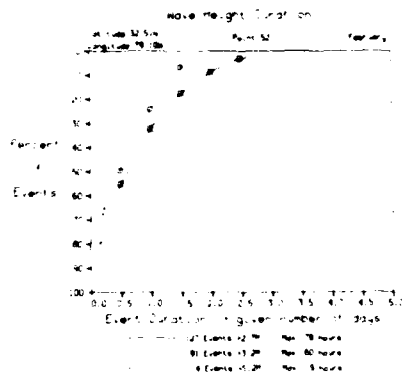
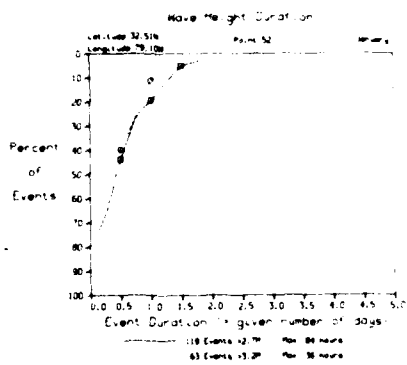


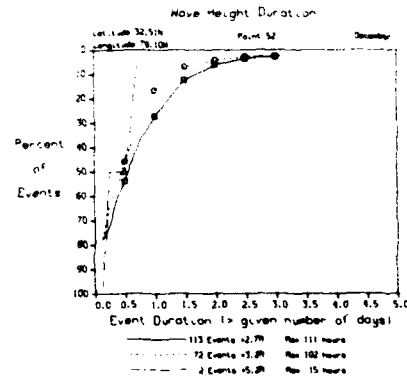
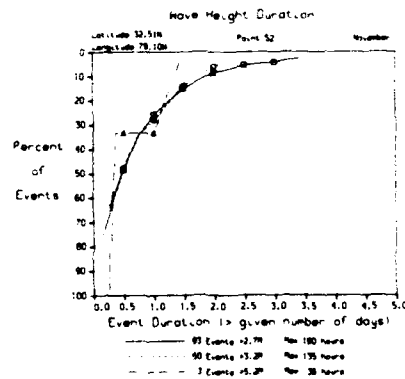
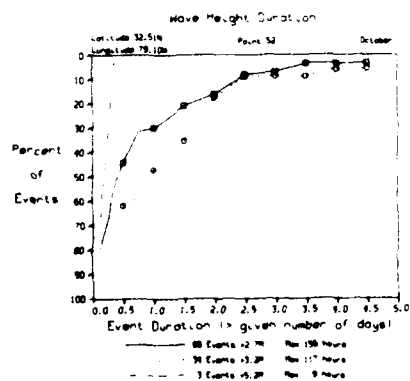
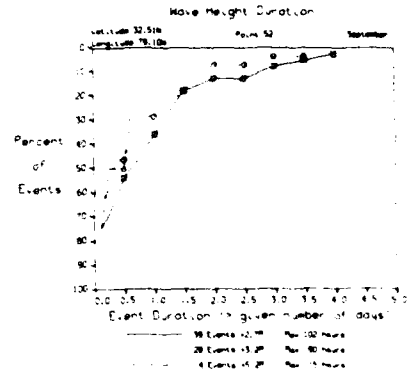
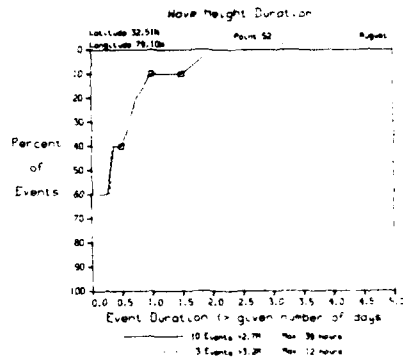
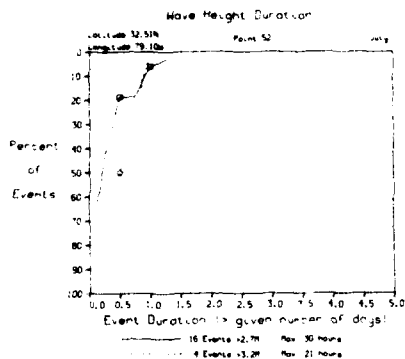


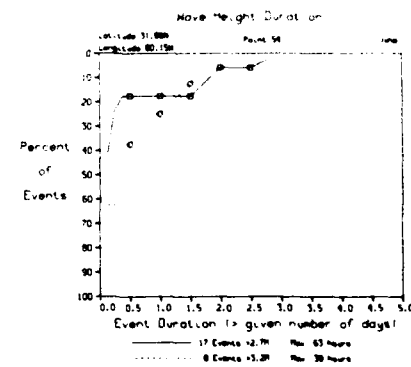
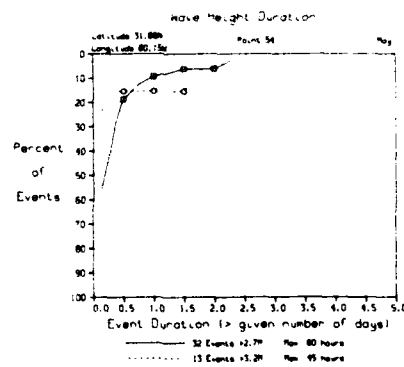
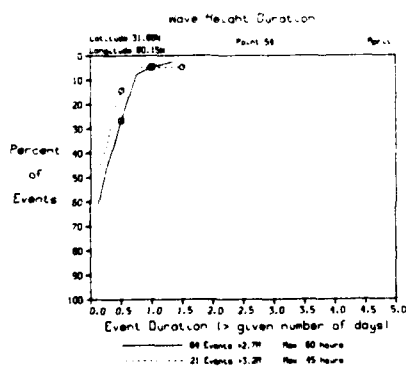
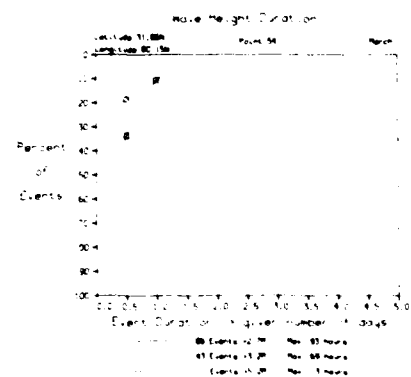
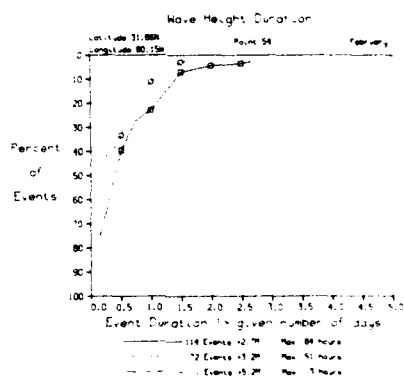
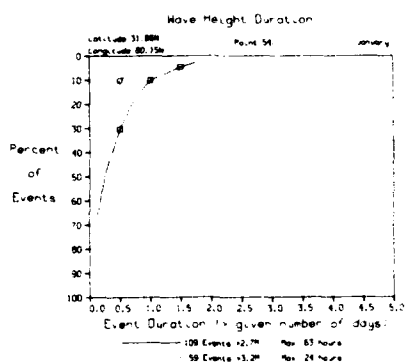


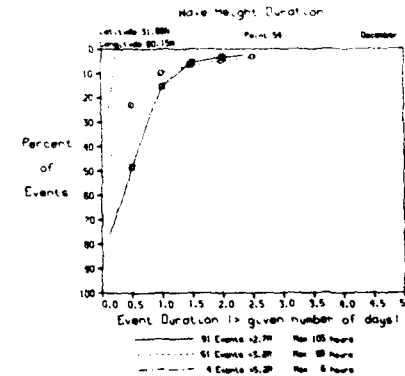
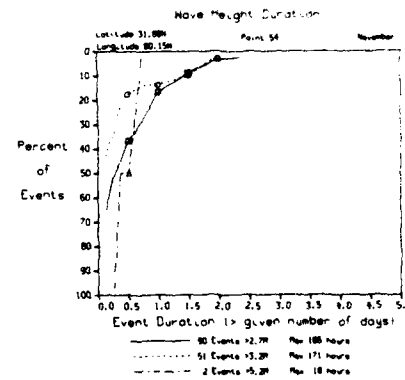
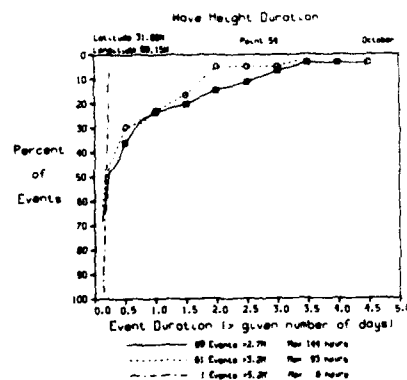
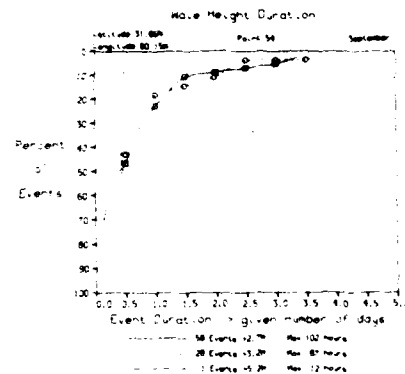
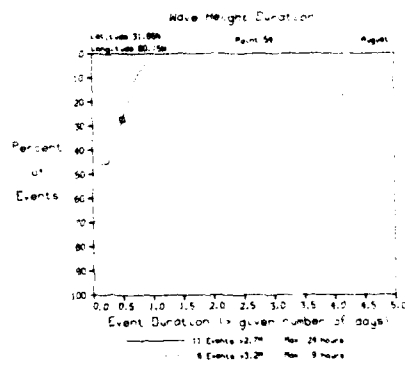
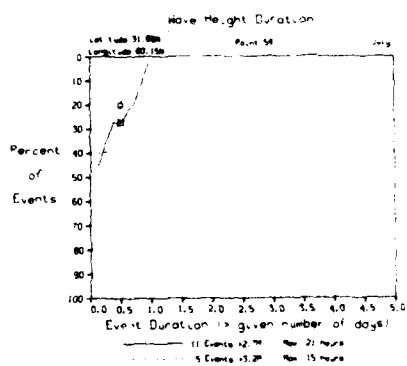


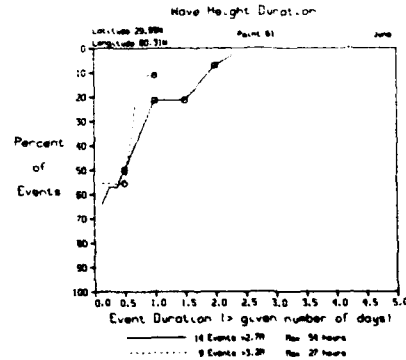
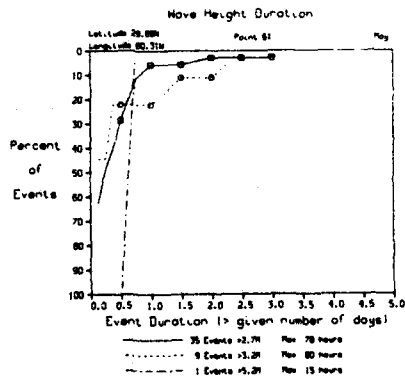
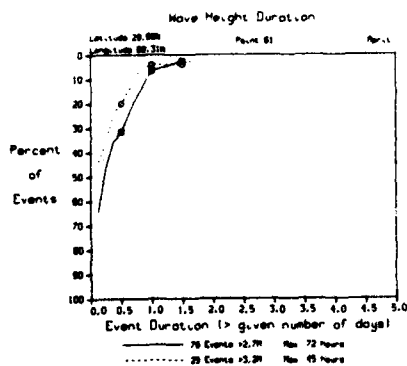
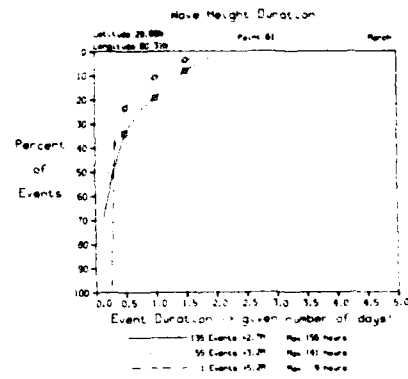
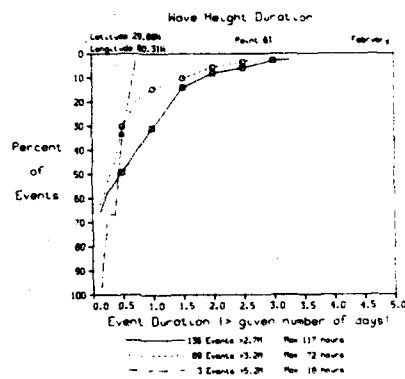
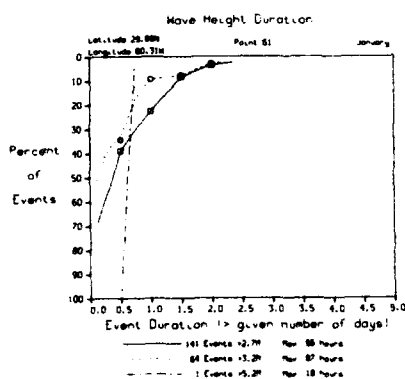


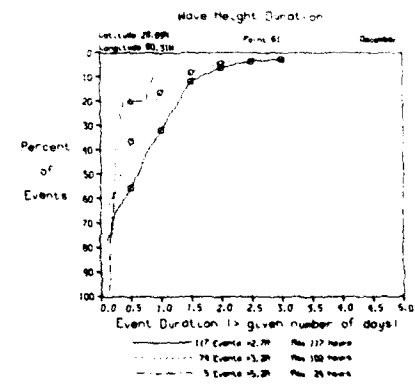
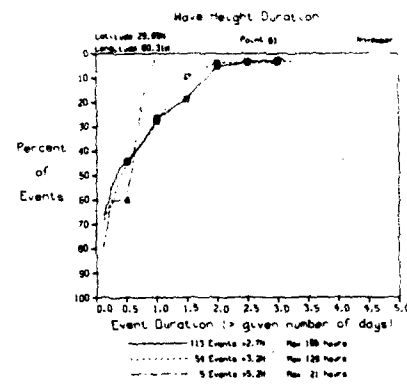
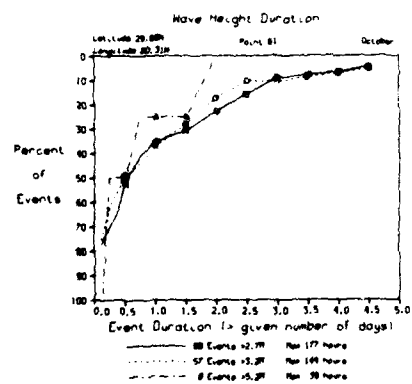
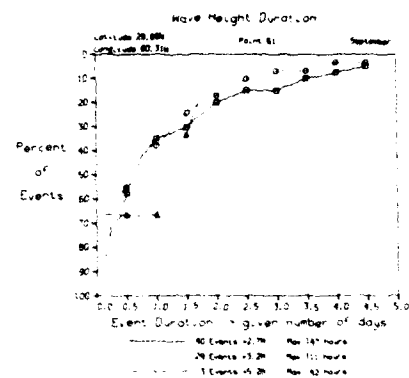
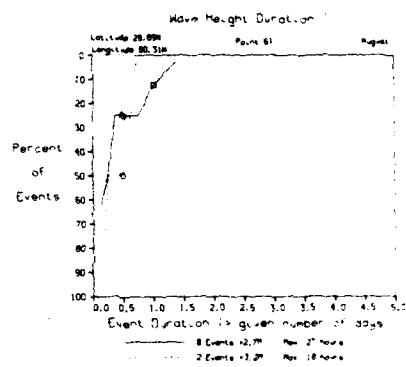
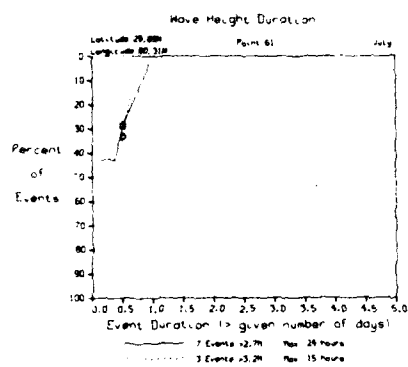


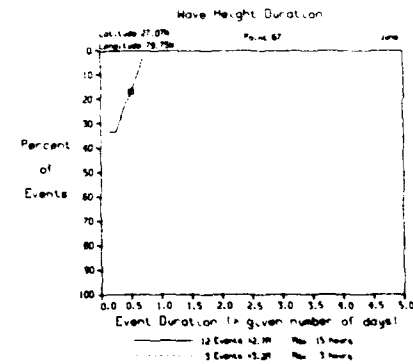
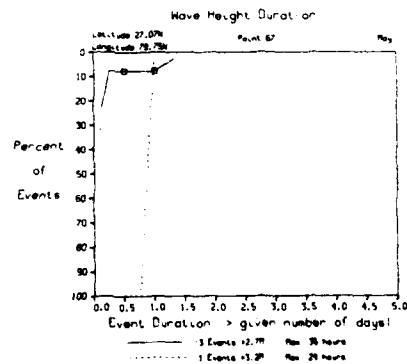
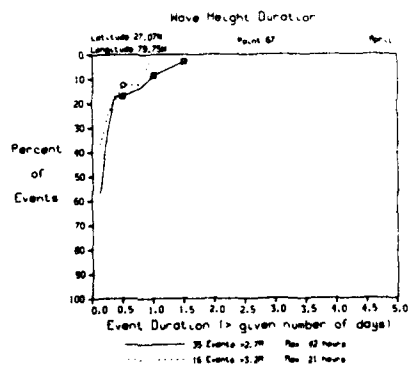
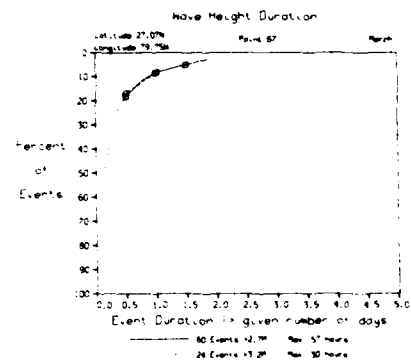
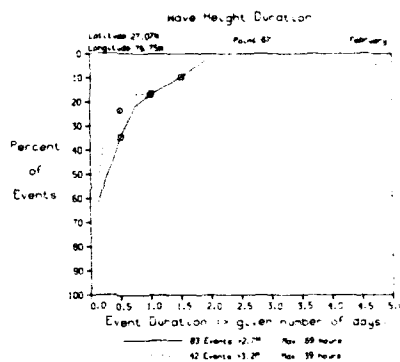
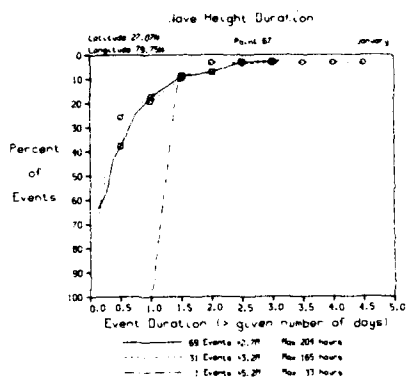


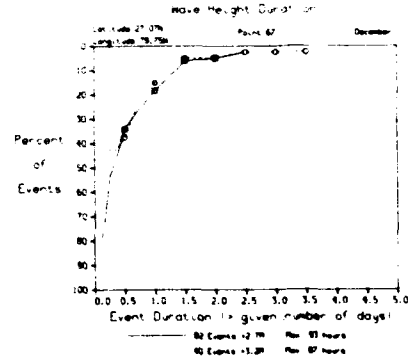
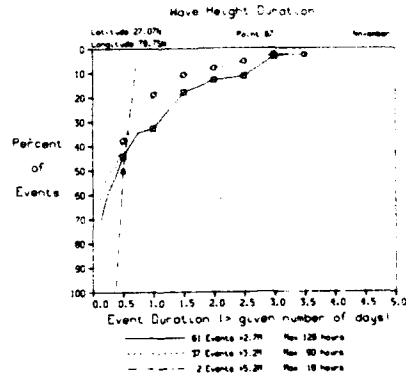
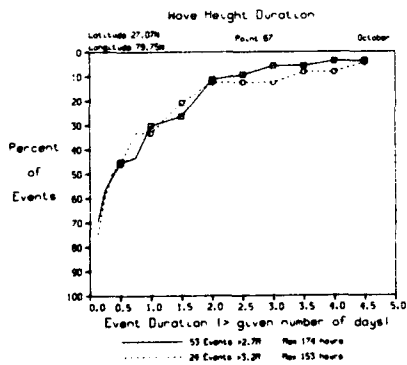
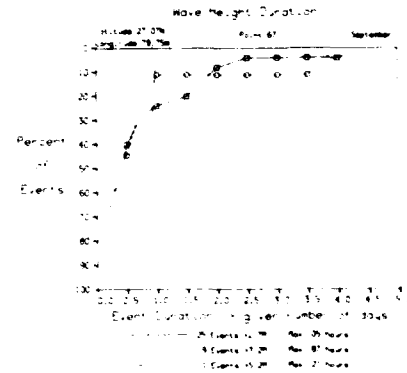
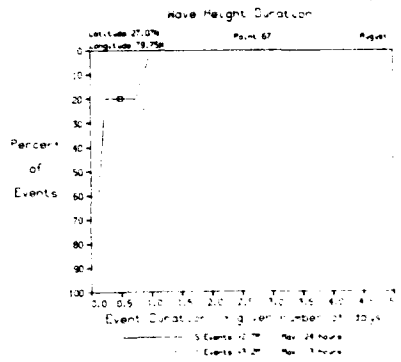
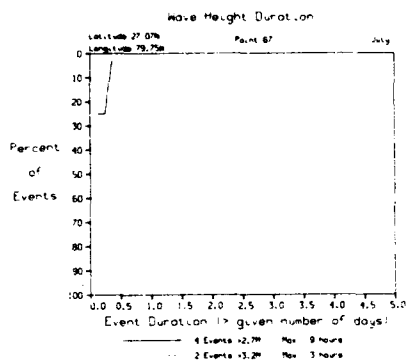


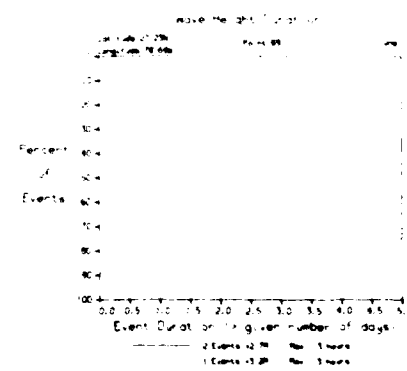
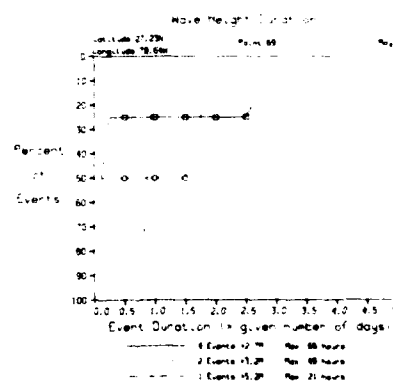
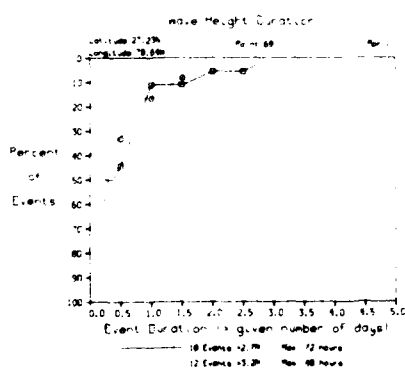
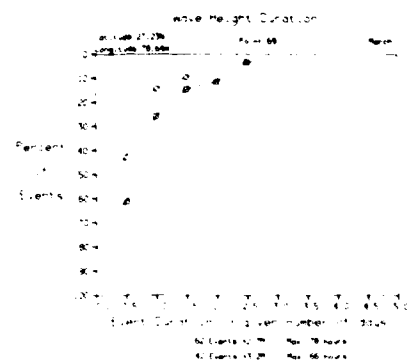
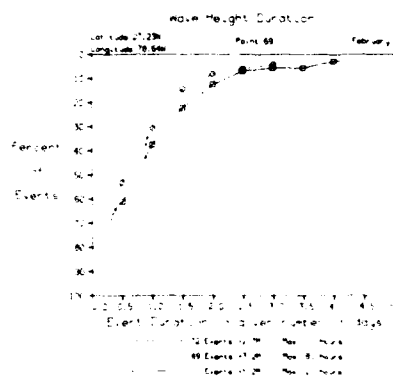
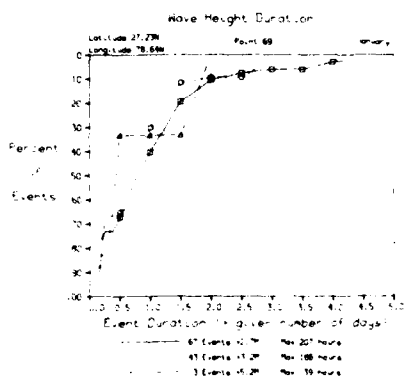






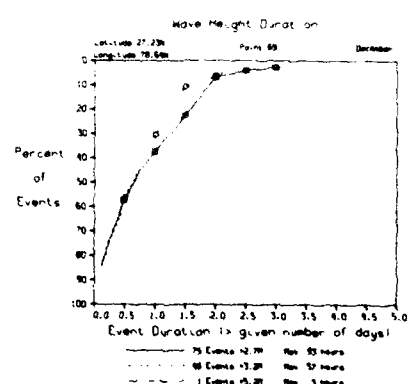
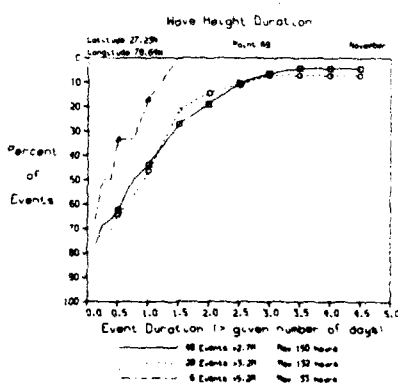
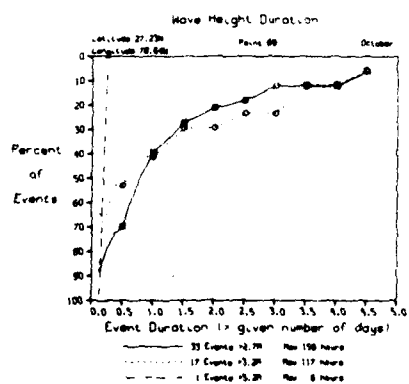
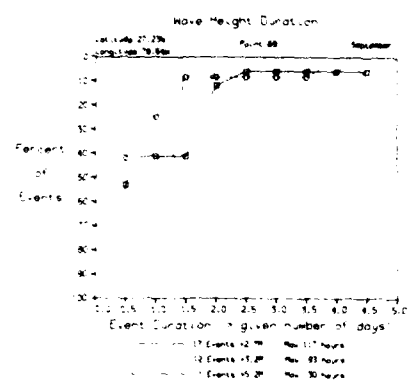
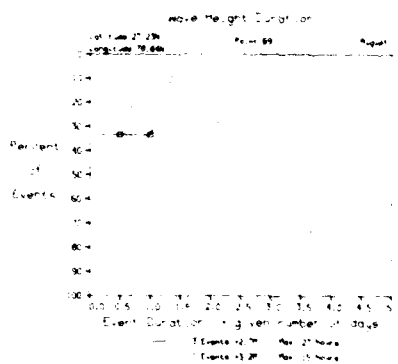


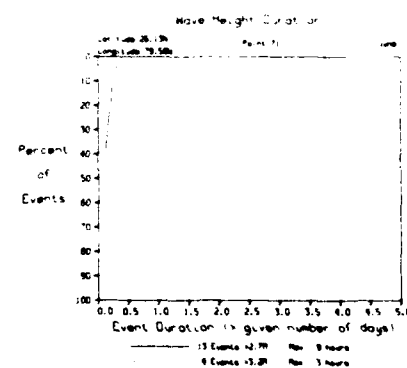
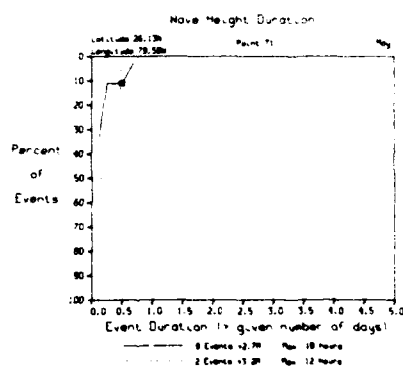
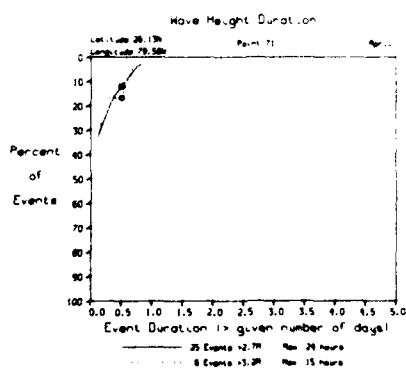
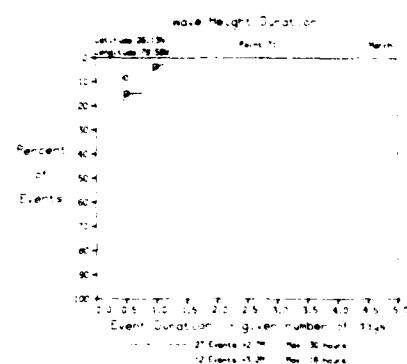
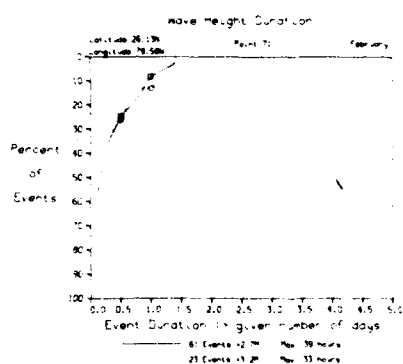
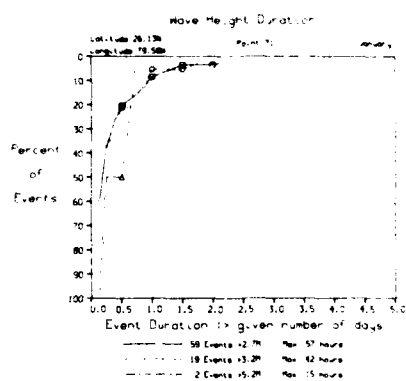


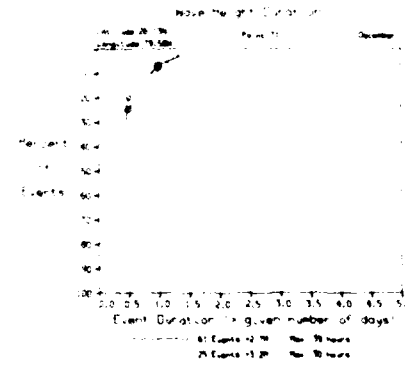
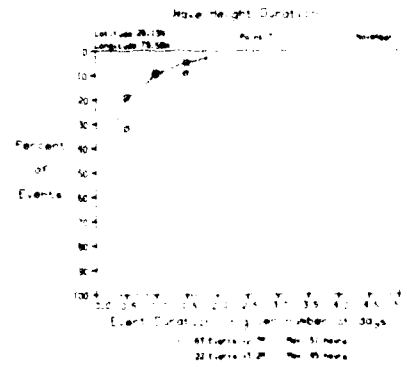
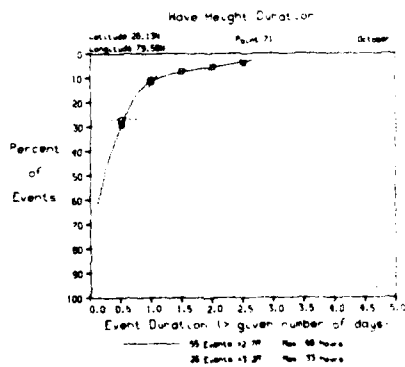
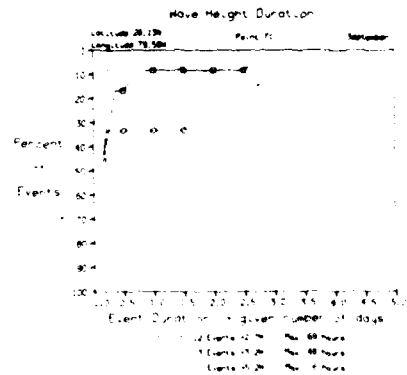
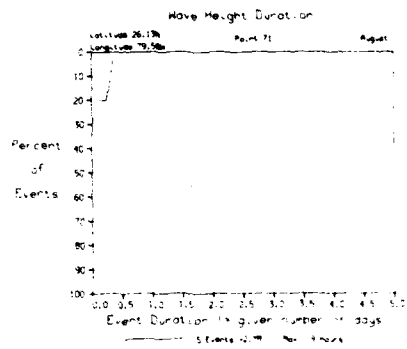
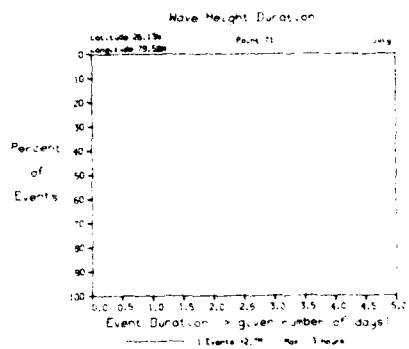


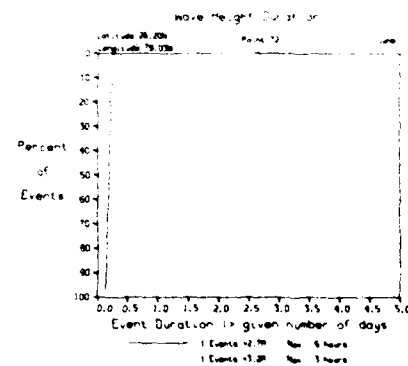
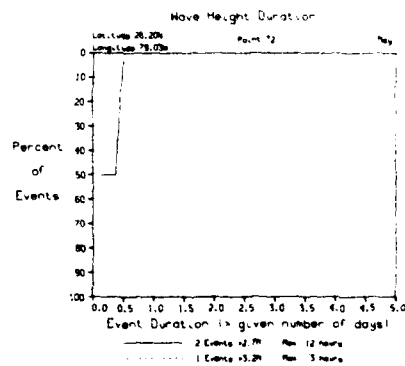
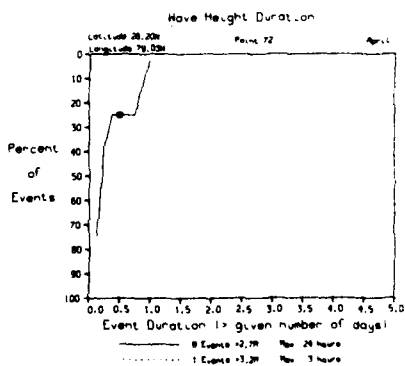
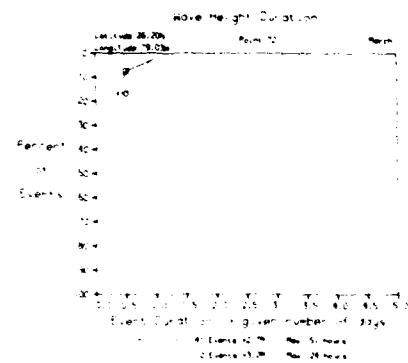
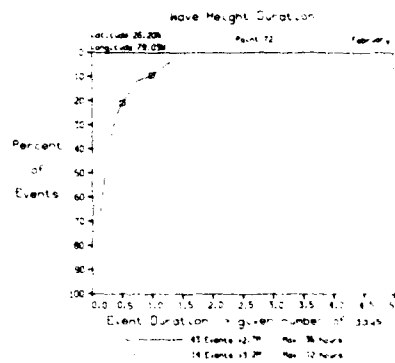
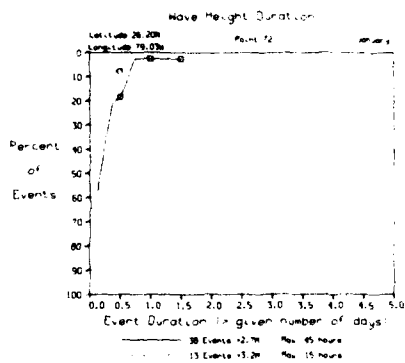
No Occurrences in

Days



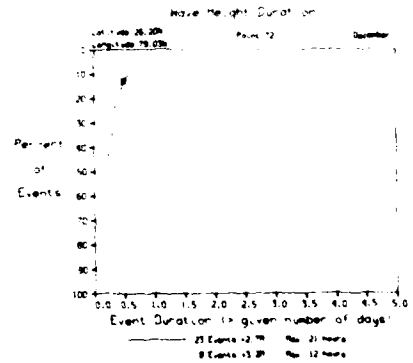
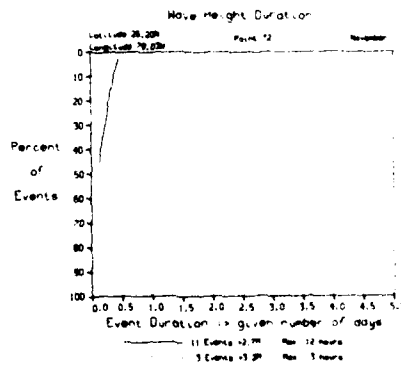
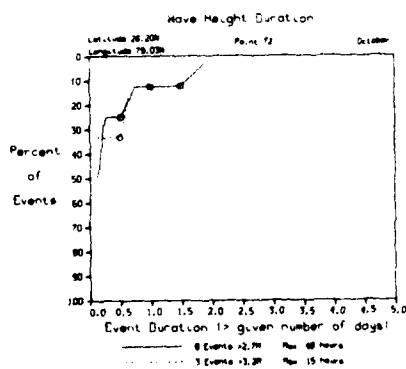
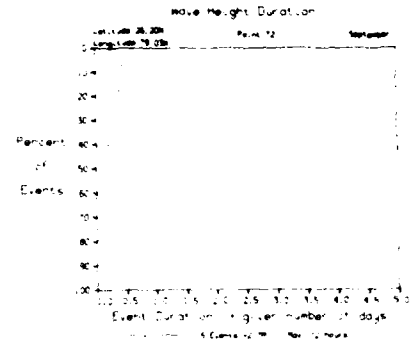
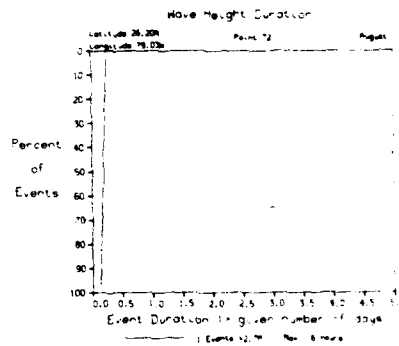


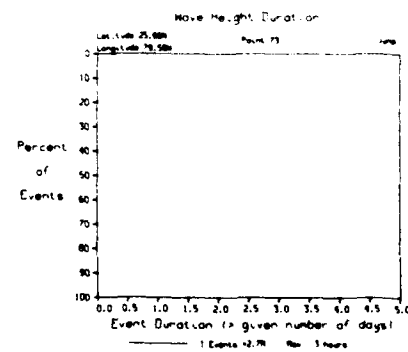
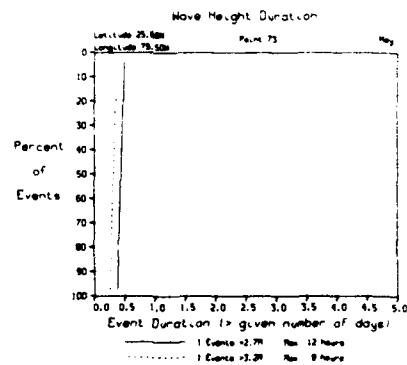
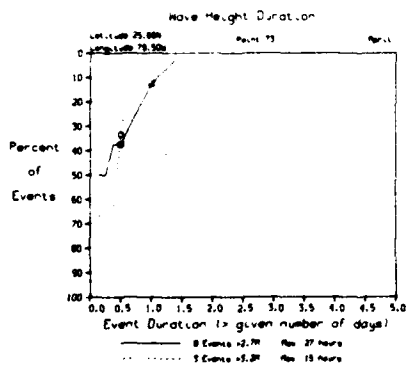
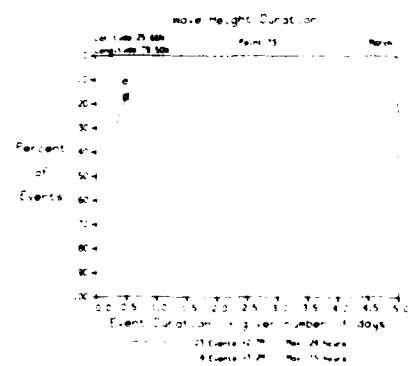
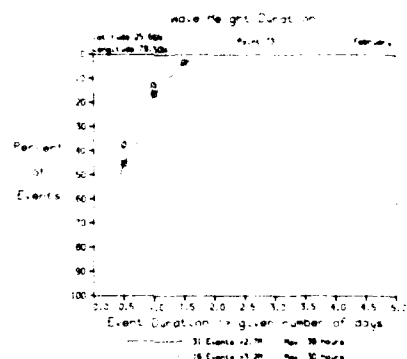
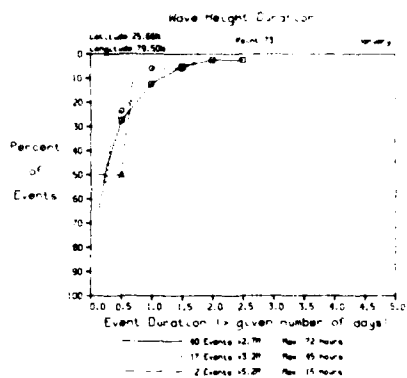




No Occurrences in

July



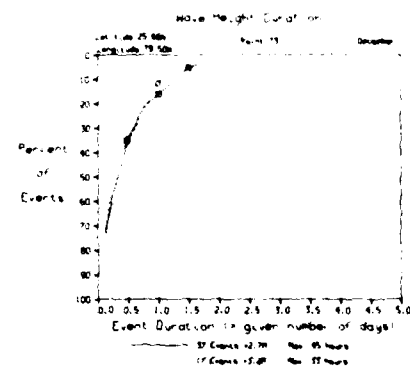
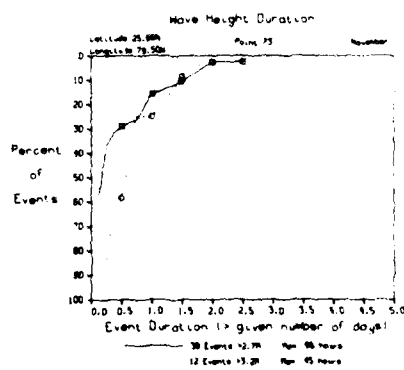
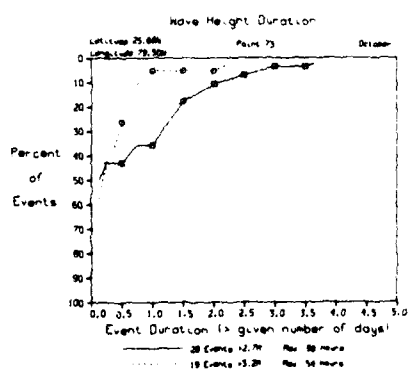
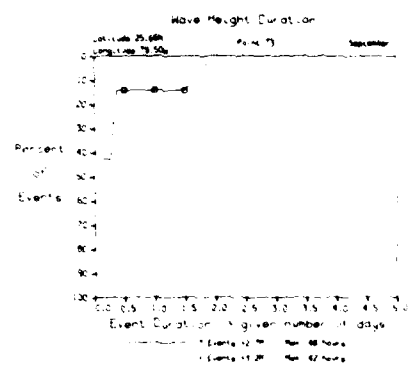


No Occurrences in

July

No Occurrences in

August



END

DATE
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9 83